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ELECTRIC RAILWAY TRACTION

A Supplement illustrating and describing developments in Electric Railway Traction is presented with each copy of this week's issue

The New Parkeston Quay

AS long ago as 1863, or less than ten years after it had been linked to London by rail, the old harbour at Harwich was a port from which regular sailings were maintained to the Continent. Some twenty years later the services were transferred to Parkeston Quay, which was built by the former Great Eastern Railway to accommodate its Continental traffic. The dimensions to which this has grown may be gauged from the fact that L.N.E.R. vessels now maintain nightly services to the Hook of Holland, and also, except Sundays, to Antwerp. In addition, there is the L.N.E.R. summer service to Zeebrugge, and thrice-weekly cargo sailings to Rotterdam, as well as daily departures of the Zeeland Steam Ship Company to Flushing and of the United Shipping Company to Esbjerg. Continental traffic via Harwich had developed so satisfactorily during the previous decade that in 1930 it became obvious that the existing facilities at the Parkeston Quay were becoming inadequate. The accommodation was barely sufficient for the demands already made upon it, and it was impossible either to develop the L.N.E.R. Company's own Continental services or to accommodate any additional outside line of steamships. The decision was made, therefore, to build a 1,120-ft. reinforced concrete extension at the western end of the quay and thus provide three additional modern berths capable of use at all states of tide by vessels of 20-ft. draught. This work, with the equipment of a new passenger station, sidings, and so forth, is now completed and forms the subject of an illustrated article on pages 461 to 465. As briefly recorded last week, it is to be opened formally on October 1 by Admiral of the Fleet Sir Reginald Tyrwhitt, who was in command of the Harwich Force during the war.

* * * *

Grimsby Fish Dock

As the biggest dock owning railway in the British Isles, as regards capital invested, the L.N.E.R. may be expected to be in the van of progress in that particular sphere. Parkeston Quay, referred to in the preceding note, has just been extended on the most modern lines, and simultaneously the great new fish dock at Grimsby, provided jointly by the Grimsby Corporation and the L.N.E.R. has been completed. Its main features are described in an article on page 470. An idea of the magnitude of the work may be gained from the fact that the cost involved has amounted to nearly £1,700,000, the area of the new dock is 37 acres, nearly two million cubic yards of earth has been excavated, an embankment containing 140,000 cubic yards had to be formed, and over 4,700 concrete and 3,450 timber piles driven. The approach road is carried over the adjacent railway lines on a concrete viaduct. The new dock is replete with electric cranes and all other modern equipment.

* * * *

The Week's Traffics

The past week's traffics of the four group companies show increases under every heading and compare with good takes for the corresponding week of 1933 except in coal. For the 37 weeks of the current year receipts of the four companies together amount to £106,321,000, an increase of £4,506,000 or 4·43 per cent. Merchandise receipts total £36,423,000, an increase of £2,665,500 or 7·89 per cent. Mersey weekly traffics have continued to show small decreases since the opening of the new road tunnel, but the aggregate increase for the year to date is £3,771. London Transport receipts for the week are £2,600 up, the total for the 11 weeks since July 1 being an increase of £55,800. Earnings of the Great Northern Railway (Ireland) for the past week show an increase of £1,200, the advance being both in passengers and goods. To date there is an advance in passenger train traffic of £93,550 and in goods train traffic of £73,650.

	37th Week				Inc. or dec.	
	Pass. &c.	Goods, &c.	Coal, &c.	Total.	Year to date	
	£	£	£	£	£	%
L.M.S.R. ..	+ 16,000	+ 14,000	+ 16,000	+ 46,000	+ 1,889,000	+ 4·63
L.N.E.R. ..	+ 16,000	+ 2,000	+ 14,000	+ 32,000	+ 1,787,000	+ 6·07
G.W.R. ..	+ 4,000	+ 2,000	+ 12,000	+ 18,000	+ 507,000	+ 2·92
S.R.	+ 8,000	+ 2,500	+ 4,500	+ 15,000	+ 323,000	+ 2·26

* * * *

Problems of Railway Publicity

As should be so of all good publicity, railway advertising attains its high standard of appeal and artistry with an apparent absence of effort. How much skill and how many complexities actually lie behind every announcement are discussed by Mr. G. H. Loftus Allen, Advertising and Publicity Officer, L.M.S.R., in the *L.M.S. Magazine*. Mr. Loftus Allen reminds us that the enormous scope of railway facilities entails a correspondingly wide range of media for making them known, the scientific selection of which is an essential duty of the publicity department. The medium being chosen, the message to be conveyed must include a larger proportion of definite and even pedestrian information than that of the average commercial advertiser, who can often pin his announcement to a single stirring idea such as the precocious intelligence

and physical perfection of children washed with his soap, or the philosophic contemplation of inevitable decay secured by registration with his insurance company. Yet the railways must make even a timetable attractive, and how well they succeed is shown by any excursion handbill, where colour, typography and layout achieve in a few square inches as strong an appeal as is sometimes found in a whole newspaper page.

* * * *

Overseas Railway Traffics

The Argentine exchange has not moved much during the past fortnight, having averaged 17·16 pesos to the £ in the past week and 17·15 pesos in the week before that. While the four principal Argentine railways have continued to show increased receipts in currency (except for a decrease of 3,000 pesos on the Buenos Ayres Western last week) none of them has had an increase in sterling receipts in the past fortnight. Central Argentine traffics in the week before last were affected by heavy rains, which were largely responsible for the decrease of £23,197, but last week the sterling decrease was only £764. The Canadian Pacific has added to its traffic increases during the past fortnight to the extent of £172,400, and in the same period the Bombay, Baroda & Central India has a further net increase of £6,600.

Railway.	No. of Week.	Weekly Traffics.	Increase or Decrease.	Aggregate Traffic.	Increase or Decrease.
		£	£	£	£
Buenos Ayres & Pacific ..	.. 11th	69,406	– 13,754	771,701	– 132,222
Buenos Ayres Great Southern	.. 11th	123,834	– 22,455	1,355,000	– 349,068
Buenos Ayres Western ..	.. 11th	33,217	– 12,513	463,537	– 104,416
Central Argentine ..	.. 11th	120,772	– 764	1,413,959	– 105,935
Canadian Pacific	.. 36th	588,400	+ 97,600	16,910,200	+1,782,200
Bombay, Baroda & Central India	23rd	122,850	– 3,375	3,432,000	+ 141,000

* * * *

Ottoman Railway from Smyrna to Aidin

Working results for the half-year to June 30, 1934, were better than those for the corresponding period of 1933, as the gross receipts of £148,215 showed an increase of £27,788 or 23·07 per cent., and in the working expenses of £118,340 there was a reduction of £1,643 or 1·37 per cent., so that the net earnings of £29,875 showed an improvement of £29,431. The debit balance carried forward is £52,115 as compared with £72,812. The increase in gross receipts is due chiefly to a large amount of wheat left over from the previous harvest and to the considerable improvement in exchange, but for the past nine months the company has not been allowed by the Turkish Government to remit its earnings for the service of its debentures, and a considerable sum has accrued in Turkey. No payment has yet been received from the Greek Government under the award of the Anglo-Hellenic Arbitral Tribunal. Up to June 30 commodity prices in Turkey had not risen and the company had been compelled to give further rate reductions for this reason and also to meet intensive road competition, and despite reductions in fares, the scarcity of money and intensive road competition have caused a further decline in passenger traffic. During the current half-year, however, there has been a rise in the prices of barley and wheat. The reduction in expenses for the past half-year is the more satisfactory as a rising exchange militates against expenditure reduction.

* * * *

Glyn Valley Tramway

One of the few narrow gauge Welsh light railways which run at the side of the public road is the 8¾ mile long Glyn Valley Tramway, originally opened in 1873 as a horse tramway, to convey slates from Glyn Ceiriog to the canal at Chirk. At the same time passengers were carried. When the Ceiriog Granite Company opened up its quarries at Hendre the Glyn Valley Tramway was extended 2¼ miles up the Ceiriog valley to the stone works, and rebuilt for locomotive working. Where necessary, between Chirk (G.W.R.) and the road up the Ceiriog valley, and at Dolywern, in particular, the railway now runs on its own ground to ease curves and grades. From 1888 traffic developed progressively, and the original 0-6-0 Beyer, Peacock tramway-type locomotive with enclosed motion was supplemented by two others in 1890. Some fifteen years ago a Baldwin 4-6-0 tank engine was purchased from the War Department, and converted from 2 ft. gauge to the 2 ft. 4½ in. gauge of the Glyn Valley line. All these engines are still in commission, despite the depression in the slate and granite industries, and bus competition, which caused the passenger trains (as illustrated on page 468) to be withdrawn on April 6, 1933. Unlike many similarly placed undertakings, no excursion traffic was run at holiday times, although as recently as 1930 heavy traffic was conveyed at Bank Holidays, and two seven coach trains were in operation. The railway is found still to be the most economical method of taking stone down to the Great Western Railway exchange sidings at Chirk.

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A Greek Railway Library

Access to a well stocked reference library is a factor in the promotion of efficiency and enthusiasm among railway staff which deserves more consideration than it at present receives. We are again reminded of this by perusal of the latest catalogue issued by the management of the Hellenic State Railways covering its own comprehensive collection of technical books and periodicals, a publication which now runs to 152 pages. Similar institutions are maintained by the Swiss Federal and Japanese Government Railways, among others, but that they are not as numerous as they deserve to be is evident from the catalogues. The Hellenic State Railways library includes many works in English, French and German and has been assembled and catalogued in a manner fitting it to equip the student with a railway education ranging from the economic, political and legal aspects of the industry to instruction in the daily business of operation and maintenance as affecting all grades of workers. Sixty-six periodicals dealing with railway and general engineering and economic subjects are stocked in the library, one of the three chosen for the section in English being THE RAILWAY GAZETTE. Two Southern Railway time-tables and an " A.B.C." of 1931 are the contributions from this country to the collection of railway guides.

* * * *

Electrification and Efficiency

In a letter which we publish on page 452 a correspondent puts forward an ingenious argument for the electrification of certain British main lines. This letter is worth careful consideration, and may be read in conjunction with the first leader in our *Electric Railway Traction Supplement* this week, in which attention is once again drawn to the traffic density necessary to make electric traction a commercial proposition. Our correspondent, Mr. K. H. Johnson, realising that at least a certain density of traffic is generally necessary to justify electrification, suggests that two main traffic arteries between London and the North might, by a reorganisation of existing train services, prove worth while converting upon this basis. Incidentally he does not say what would become of the existing main lines from which the bulk of the traffic would be diverted. He goes on, however, to plead his case as one suitable for a Government grant in relief of unemployment, without carrying the argument to its logical conclusion that, since electric traction under the

conditions stipulated is more efficient than steam, there must eventually be a reduction of employment when the scheme is completed. In fact, every increase in industrial efficiency means more output for less energy expenditure, hence the growth of the "unemployment problem" commensurately with the increase of industrial efficiency. We do not suggest that Mr. Johnson's scheme is thus invalidated, but it presents yet another example of the difficulties in the way of increasing efficiency. The solution, which will have to be adopted sooner or later, will be to give people enough purchasing power to make the carrying out of all efficiency schemes commercially sound by ensuring demand for the product.

* * * *

An Anglo-Scottish Acceleration

A couple of minor curtailments of running time, which figure in the winter train service alterations set out on page 469 of this issue, are of interest. The up Royal Scot of the L.M.S.R., which in winter transfers its stop at Carlisle from No. 12 signalbox to the passenger station, is this winter retaining its summer arrival time of 5.40 p.m. at Euston, instead of the customary winter 5.45 p.m. The Flying Scotsman of the L.N.E.R. has therefore been altered to correspond, and by running from York to Grantham in 90 min., and from there to King's Cross in 112 min., will also reach London at 5.40 p.m. One result of this acceleration is that the up Scotsman, though calling additionally at Darlington, will take 5 min. less on the journey than the down train. But on the L.M.S.R. the disparity between up and down times will be greater, for the up Royal Scot will take 7 hr. 40 min. from Edinburgh to Euston, whereas the down Royal Scot requires 8 hr. to run from Euston to Edinburgh, with only the additional stops at Rugby and Crewe, on the down journey to explain the difference. Now, therefore, it will be possible throughout the winter to run from Edinburgh to Euston in 40 min. less than the best pre-war time. The curtailment in the opposite direction is 15 min. only, and, that the down Royal Scot still takes 5 min. more to run from Crewe to Carlisle than in pre-war days, despite the great advances that have been made in locomotive power since then, is doubtless due to operating requirements which it may be possible to modify in due course.

* * * *

Roads *versus* Railways in the Mountains

Proposals have been on foot recently to open up the lesser-known side of the English Lake District—Wasdale and Eskdale—by constructing a road over Styhead Pass, 1,600 ft. above sea level, to connect Wasdale with Borrowdale, and making a direct route between Keswick and Wastwater. A correspondent, writing to the *Manchester Guardian*, with due apologies to the shades of Ruskin, suggests that a "toy" railway would be the preferable alternative, even from the scenic point of view. As he points out, a formation 5 ft. or 6 ft. wide, which would be sufficient for a very narrow gauge, would be almost invisible on the hillsides in comparison with the scars caused by the construction of a road, which would need to be at least 15 ft. wide; spiral tunnelling could be used to avoid conspicuous viaducts and embankments, and to ease the grades; and, as minor advantages, trippers, with their accompaniment of litter, would be deposited only where the trains stopped, and the "ribbon" development associated with main roads would be avoided. Unhappily, however, a railway, which through such country as this would be a costly undertaking, even on a narrow gauge, would necessarily be built by private enterprise. With the fickle weather which obtains in this wettest of all areas of the English Lake District, and virtual dependence for revenue on sightseeing traffic during the short summer season, we can imagine no prospect of such a line as this being able to pay its way.

* * * *

Lakeland Railways

The writer of the letter referred to in the previous note went on to suggest that the existing 15-in. gauge Ravenglass & Eskdale Railway might be extended to Keswick by way of Styhead Pass, but in any event this would be impracticable. A gauge as narrow as this would be out of the question for a run of such length and severe grading. Moreover, the logical continuation of the R. & E.R. from Boot would be in the direct line of the old Roman Road by way of Hardknott and Wrynose Passes to Ambleside, 16 miles away. The latter idea is by no means new, and probably could be carried into effect with comparatively little difficulty, from the engineering point of view, as the passes concerned are more than 300 ft. lower in altitude than Styhead, and the length of the extension would not be great. But to connect Ravenglass with Keswick would require new line from Murthwaite (3 miles from Ravenglass) to Santon Bridge—a route once surveyed by the late Sir Aubrey Brocklebank for a branch from the R. & E.R., to be built entirely on his own property—and from there to the foot of Wastwater, along the west side of the lake and up Wasdale to Styhead, whence the line would run down to Seatoller and through Borrowdale to Derwentwater and Keswick. Such a route could not be satisfactorily operated on anything less than 2 ft. 6 in. gauge; and if expenditure on this scale were contemplated, it would probably be better employed in connecting Windermere direct with Keswick by way of Grasmere and Thirlmere—a plan which would add greatly to the accessibility of Keswick from the south.

* * * *

The Belt System in Belgium

A considerable reorganisation scheme has been effected in the main repair shops of the Belgian National Railways at Malines. These shops are the oldest on the system and carry out repairs to all carriages and a proportion of the locomotives, in addition to manufacturing large quantities of spares. Prior to the reorganisation and partial rebuilding of the shops, the buildings, covering an area of 98 acres, had become out of date and unsuitable for modern working methods. A scheme of reorganisation was put in hand in 1929, but since then new shops have been built and the methods of work completely overhauled. The belt system of operation for both locomotives and rolling stock has been adopted, together with other modifications associated with the establishment of a progress office in which time schedules, movements of materials, distribution of work and so forth are planned. The results so far recorded have been highly encouraging and satisfactory. In an article on the subject in the *Bulletin of the International Railway Congress Association* for August, Mr. A. Verbeemen, who occupies an administrative position at the Malines works, states that a locomotive repaired before the reorganisation took about 60 working days and absorbed 6,500 man-hours. At the present time, with the belt system in use and every movement governed by a work progress system, heavy repairs to a locomotive take only 20 working days, absorbing some 3,700 man-hours and costing 93,000 francs as against something like twice that amount previously. In addition, the time the locomotives are out of service has been reduced by over 50 per cent.

South African Railway Commission

THE report of the commission appointed in August, 1933, to investigate the financial position and the working of the South African Railways, has now been issued, and a brief summary of its recommendations will be found on page 457. As will be remembered, Sir Guy Granet was Chairman of the Commission, and with him were a member and two assistants. The commissioners began their work towards the end of October, 1933. By that time the railways had begun to recover from the effects of the financial depression which had not lifted appreciably at the time when the appointment of the commission was under consideration. It is evident from the summary given elsewhere that the commission has recognised the success achieved by the South African Railways Administration in meeting the special difficulties of operation caused by the geographical features of the country. The total of £13,000 a mile, even after allowing for the fact that the standard gauge in South Africa is 3 ft. 6 in. and that 884 miles of track are of 2 ft. gauge, compared favourably with that of any other countries the commissioners know. After considering the question of organisation in all its aspects, the commission concludes unhesitatingly that the existing system is the one best suited to the conditions affecting the railways and harbours in South Africa. It does not recommend any change in the main structure of the system organisation, but suggests some strengthening at certain points. An interesting proposal which we are very pleased to see, is the appointment of a scientific research officer.

The commissioners were impressed by the striking disproportion between the revenue contributed by the relatively small tonnage of high-rated traffic and that produced by the large volume of low-rated traffic. From all sides, of course, come claims for rate reductions. In view of the existing financial position of the undertaking, no change in tariffs is advocated, but the commission is of opinion that in the event of the administration receiving relief in respect of interest charges, the tariff policy as affecting the higher-rated classes of goods should be reconsidered, but there was no justification for a further reduction in agricultural rates. In this connection, the commission considers that the interest charges of branch lines constructed since Union place an undue burden on the administration. On the other hand, as the railways enjoy the benefit of being treated as a State department and so avoid all payments for customs and licences for their motor vehicles, the commission considers that it is not either unreasonable or contrary to business principles that the railways should perform free services for other Government departments. The Act of Union lays down, it will be remembered, that the railways shall be worked on business principles.

On the subject of electrification, the commission holds the view that, apart from the possible extension of existing electrification schemes, the density of traffic is insufficient to justify further large schemes of main line electrification. Regarding locomotives, the number of classes should be reduced, 20 to 25 standard classes being regarded as adequate. Changes in the internal organisation of each workshop would, in the opinion of the commission, result in improved output, and the appointment is recommended of two works managers under the Mechanical Engineer to supervise and control separately the locomotive and the carriage and wagon branches. The commission also recommends that the sleeper plantations belonging to the administration should be disposed of at the best prices obtainable. A proposal for the creation of a Railway Rates Tribunal to hear and determine complaints by railway users against railway rates appeared to have the support of a considerable body of commercial and industrial opinion in the Union, but the commission pronounces definitely against it.

* * * *

Beira and Mashonaland and Rhodesia Railways

THE railways included in this system have now a total length of 2,708 miles on the 3 ft. 6 in. gauge, of which 112 miles are in the Cape Province and 198 miles are in Portuguese East Africa. Though belonging to four separate companies, namely, the Mashonaland Railway Co. Ltd., the Rhodesia Railways Limited, the Beira Railway Co. Ltd., and the Shabani Railway Co. Ltd., they are worked as to 2,119 miles by one administration, and the 589 miles extending from Vryburg to Bulawayo, including the Matopos branch, are operated by the South African Railways. Bulawayo is the effective centre of the system, from which railways extend to the border of the Belgian Congo on the north, to Bechuanaland on the south, and to the port of Beira on the east. The net decrease of six miles in the open mileage is due to adjustments on account of deviations and curve flatten-ings carried out during recent years.

According to the report for the financial year ended September 30, 1933, which we have received from Mr. H. Chapman, the General Manager, the results for that period showed a distinct improvement in comparison with 1931-32. While earnings rose by £253,411 or 9·6 per cent., expenditure fell by £278,481 or 10·9 per cent., net revenue thus showing an increase of £531,892. With the increased activity of the copper mines in Northern Rhodesia and of the asbestos and gold mining industries in Southern Rhodesia, the marketing of a maize crop in the latter territory which closely approached the record, and the lifting of the ban on the export of chilled and frozen meat, economic conditions started to improve during the latter part of the year. The improvement in earnings was due mainly to the larger volume of traffic to and from the Northern Rhodesia copper mines and the asbestos mines in Southern Rhodesia, and to increased revenue from general goods traffic. In operating expenditure the decrease reflects the cumulative benefits derived from the economy measures introduced. The accompanying table compares some operating figures for the past two years:—

	1932–33	1931–32
Passengers, number	613,188	721,654
Total goods, tons	1,480,169	1,577,123
Operating ratio, per cent. ..	79·06	97·24
Train-miles	3,425,619	3,501,885
	£	£
Passenger receipts	279,615	301,990
Goods and mineral receipts (excluding departmental) ..	2,343,588	2,037,509
Gross earnings	2,887,677	2,634,266
Gross operating expenses ..	2,282,968	2,561,449
Net earnings	604,709	72,817

In comparison with 1929-30, earnings in 1932-33 fell 45·5 per cent., but there was a saving of 43·6 per cent. in operating expenditure, excluding provision for depreciation and renewals. A reduction in expenditure so closely proportionate to the decrease in revenue, and effected without lowering the proper standard of maintenance or unduly curtailing facilities, may be regarded as satisfactory. The average net train load on railways north of Bulawayo has increased from 222 tons in 1929-30 to 236 tons, the train-miles per train engine hour from 13·7 to 16·6, and the net ton-miles per train engine hour from 3,038 to 3,911. In comparison with 1931-32, expenditure

in the year under review on way and works was reduced by £14,226, practically the whole of this decrease being in respect of the cessation of stone ballasting work. Expenditure on locomotive maintenance decreased by £34,803 or 16·5 per cent. Costs per engine mile averaged 10·31d. in 1932-33, as compared with 11·88d. during the previous year. A decrease in locomotive mileage of 3·8 per cent. was accompanied by a reduction of £50,257, or 11·8 per cent., in locomotive running expenses. In traffic running expenses there was a reduction of £43,497, or 17·4 per cent., while train mileage decreased 2·2 per cent. Coal consumption per engine mile was 66·66 lb., as compared with 69·47 lb. in the previous year and 73·34 lb. in 1929-30.

* * * *

The Development of "Tourism"

IT has not been until recent years that Great Britain has made any serious effort to secure a share of the lucrative tourist business from which the other European nations have reaped such rich harvests. It is true that private enterprise has been responsible for a certain amount of propaganda in America and on the Continent, but there has been a lack of interest in official quarters, with the result that the efforts made have missed the direction and force of a central and co-ordinating authority. This state of affairs was doubtless the result of that pre-war industrial supremacy which made Great Britain the greatest trading nation in the world and rendered us independent of, and indifferent to, the foreign tourist. The change which has taken place in the economic situation during recent years has compelled attention to be directed to the desirability of improving the trade balance of the nation by encouraging the invisible export known throughout the world as "tourism." To this end the Travel Association of Great Britain and Ireland was incorporated in April, 1929, and received Government sanction and support. From the outset the railway companies gave the undertaking valuable assistance and contributed generously to its funds. Other interests, however, were not so quick to perceive the importance of the step which had been taken, and for a long time the association was handicapped by the inability of local authorities to contribute towards its funds. The latter difficulty was overcome by securing the passing of an Act of Parliament known as the "Local Authorities (Publicity) Act, 1931," which enables every borough and urban district council to contribute, if so desired, to the extent of a halfpenny rate. As a result of this legislation, many local authorities now contribute to the funds of the association, and the way is open for others to follow suit.

In January, 1932, the name of the association was changed to the "Travel and Industrial Development Association of Great Britain and Ireland," and the scope of its activities enlarged to include foreign propaganda on behalf of industrial districts as well as holiday centres. The association is fortunate in possessing the active interest and support of Lord Derby, who has been president ever since its inception. The Executive Committee, under the Chairmanship of the Secretary of the Department of Overseas Trade, includes many well-known personalities in the realms of travel and industry, Sir James Milne representing the railway interest. So far, the subscriptions and donations received by the association have not exceeded approximately £23,000 per annum, including the Government grant of £4,000 per annum. On this comparatively small income the association has contrived to perform much useful work on behalf of British travel and industrial interests. Offices have been established in New York and Paris, and the association has honorary representatives in Belgrade, Brussels, Buenos Aires, Copenhagen, Lyons, Oslo, Ottawa, Stockholm, and Vienna. By reason of the Government support, the association also enjoys the practical co-operation of H.M. Ambassadors, Ministers, Consuls and Trade Commissioners in all parts of the world. The publications issued by the association are of a high standard and have received encouraging receptions from the foreign press. *Coming Events* and *Industrial Britain* are widely quoted in America, where broadcast talks through 250 radio stations have also aroused a lively interest in Great Britain. In addition to the annual *Calendar of Events* and *Hotels in Great Britain*, the association has issued several publications in Dutch, French, German and Spanish, all of which have been the subject of very favourable comment. Other activities have included exhibits at the great international fairs held at the various Continental capitals, film publicity, arranging tours for foreign press representatives, and placing advertisements on behalf of hotels and local authorities in foreign newspapers.

There can be no doubt that the association is engaged in work of the highest national importance, but lack of adequate financial support is proving a severe handicap. The Government grant of £4,000 per annum is trifling compared with the subsidies allowed by foreign governments for similar purposes, and is out of all proportion to the importance and potentiality of the task in hand. So far as private interests are concerned, the railway companies have been, from the first, among the principal supporters of the association and have contributed substantially to its funds. It must be recognised, however, that of all the interests concerned in the work of the association, the various travel and industrial areas are likely to obtain the greatest benefit, and it is to be hoped that the local authorities concerned will take an increased share in the support of this valuable organisation. Great Britain is possessed of unequalled attractions for the foreign tourist. In historic interest, scenic beauty, treasures of art and literature, sports meetings, and all the pageantry of great social events, we stand unrivalled. It is good to know that the foreign holiday visitors to Britain during the seven months ended July 31 numbered 123,742, an increase of 13,394 compared with the corresponding period of last year, and it is fitting that some credit for this pleasing improvement in British "tourism" should be accorded the Travel and Industrial Development Association of Great Britain and Ireland.

* * * *

A Prince of Beggars

It is probable that charities would benefit more highly from the flag days which have lately become almost weekly events in many principal towns, if all the collectors employed possessed the qualities so well exemplified in a famous railway servant who has recently died. We refer to *Victor* of Euston, the L.M.S.R. collecting dog who accumulated £2,700 from passengers in the course of his life at the station. *Victor's* career is briefly referred to in our Scrap Heap page this week, and although he did not equal the record of his predecessor, his memory will be esteemed for the unfailing goodwill and efficiency with which he discharged his duties and for the popularity he enjoyed with the public. It is not uncommon in these days to hear charity abused by political theorists who prefer the spectacle of universal misery to one of general happiness under a system other than their own. To *Victor* and his fellows of other companies, and to the railway servants who devote so much of their time and attention to these dogs, belongs credit for helping to maintain the dignity of an honourable practice.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Integration of Traffic and Selective Electrifications

99, Clifton Road, S.E.25.
September 16

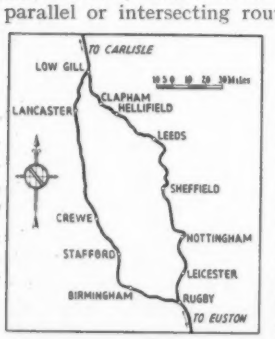
TO THE EDITOR OF THE RAILWAY GAZETTE

SIR,—It is only natural that the trials of the last few years should have wrought a more progressive outlook in the railway world. It is periods of stress and strain that find out the weak spots and point the way to progress, or so we are told by the apologists of motor racing and trans-atlantic flights. Yet, even at a time when the railway world seems reassuming the tractability of an industry in its early years, there is still but little of that flair for planning far ahead whereby alone, with any certainty, can be enabled the fittest to survive.

That the present drift of industry and population to the South has already become a serious portent for the northern groups can hardly be denied by anyone who studies the Board of Trade returns. That it stands to be accelerated by the expenditure of £2,000,000 on the Welland Canal Scheme seems no less plain. Is it not clear that, at some not very remote stage, it might only require a general extension of electrification in the Home Counties to tilt the scales decisively against the North? For the railways, with their huge overhead charges, are notoriously sensitive to any loss of trade.

If such a disaster is to be forestalled, the groups which are threatened will require more than their new-found responsiveness to the needs of the present day. Evolution remains but semi-organised till seized by the spirit in which (as it has recently come to light) the immediate value of the great Cremona violins was sacrificed for the sake of qualities that would emerge with the age-long maturing of the wood—the spirit which led the Stephensons to design the London & Birmingham Railway not so much in the interests of the original shareholders as to meet the utmost demand of posterity imaginable: to provide, indeed, for speeds which even yet seem hardly within reach.

Surely, with the introduction of streamlined trains and the consequent feasibility of a sustained hundred miles an hour, the time is ripe to take advantage of this great inheritance from the past. At a time when France is electrifying five hundred miles of track, cannot a much more densely populated country like our own afford to have at least one electrified highway to the North? The Weir Committee has already pronounced in favour of electrification from Crewe to Carlisle, even without taking into account the possibility, suggested below, of diverting expresses from the Eden Valley route to swell the traffic northwards of Low Gill. From Euston to Birmingham and so onwards to Crewe (a détour of only seven miles) the case is vastly stronger, for the line could be flooded to saturation with the principal fast trains, not only L.M.S. and L.N.E., but G.W.R. as well, at present using the parallel or intersecting routes which link up London with Sheffield, Birmingham, and the towns beyond.



For the Midlands, the obvious way would be along the Rugby and Leicester branch to the point where it is crossed, at a most convenient angle and gradient, by the line from Marylebone. Here, the advantages clearly begin to lie with the L.N.E.R., taking as it does both Leicester and Nottingham in its stride. But, after Chesterfield, the L.M.S. would perhaps give the more favourable approach to the city of steel. It would all depend on the route to be followed from Sheffield to Leeds, and here the territory is so rich in alternatives that only a detailed investigation could settle which was best. Traffic continues to be plentiful as far as Skipton, but even the sparsely populated forty miles to Low Gill Junction should repay the necessary expenditure if only to effect continuity by this second route to Carlisle.

So far, it has been possible to indicate only a few of the advantages of the scheme. But it is clear, too, how very greatly the convergence of so many first-class services at Rugby would improve communications in the Midlands, besides providing opportunities for working trains in double harness over the eighty miles to Euston which would make for further economies as well as keeping down the pressure on the line. Many of the services now run for the benefit of Birmingham would be rendered superfluous by the profusion of trains passing through it on their way between London and the North. In any case, with the choice of two routes across the Black Country (not counting the G.W.R. which offers a third) congestion need hardly be feared in that already busy area. But, in the last resort, the lines in use at present would always remain open for trains incapable of being dispensed with or fitted in on the electrified track.

The intention is that these metals should continue to be operated by steam. But the experience of the Ore Railway in Sweden, over which electrification resulted in a threefold increase of carrying capacity and so averted the need for a second line, is perhaps not without significance. Does it not seem likely that, with the more important trains out of the way, most of what remained could be accommodated on a single electrified track, any residuum being worked on the other by steam? Possibly some of the busier branch lines would lend themselves to treatment of a similar kind, by the consequent speeding-up, not only to win back traffic from the roads but also to augment its volume as a whole.

Indeed, had such a densely-populated area sprung up in a land accustomed to really long hauls, the position would probably have been sized up in its true proportions long ago. For what is the railway problem throughout England but a suburban problem on a gigantic scale—affording endless possibilities for streamlined services ranging to a hundred miles or so from London, of a frequency hitherto unthought of outside a thirty-mile radius? If a resident near Blisworth or Roade could reach Leicester or Birmingham in half an hour for the day's business, and be able to return from a London theatre in forty minutes at night, would there not be a splendid opening for a great residential estate at some such half-way point? To look for guidance to the New World, where railway promoters often gave road-making demonstrations as a means of fostering the growth of towns, there would seem no reason why the development of such an estate should not be taken in hand by the railway itself, popularising the idea, as it could, by the offer of an attractive combined rate of season ticket and rent of house. Proportionate opportunities almost certainly exist round other large centres of population. Even Brighton could be made a suburb of the Midlands: witness the hundreds who have thought it worth while to spend nearly four hours a day going to and fro between London and Clacton.

But the present combination of propitious circumstances can hardly be expected to last indefinitely, and, unless acted upon at an early date, may well be lost for ever. With the Government disposed once more to finance schemes for unemployment relief, the electrification of industry tending always to make for smaller units of population, and interest rates still low, would Stephenson himself have hesitated?

Yours faithfully, K. H. JOHNSON

[We comment editorially on this letter on page 448.—ED. *R.G.*]

PUBLICATIONS RECEIVED

A Yearbook of Railroad Information, 1934. New York: Committee on Public Relations of the Eastern Railroads, 143, Liberty Street. 6 in. × 4 in. 96 pp. No price stated.—The gravity of the railway situation in the United States is forcefully put in the foreword to this handy booklet, when it is pointed out that the current policies which strictly regulate railway operation, while allowing almost complete freedom to its competitors, are jeopardising the continuance of an essential public service. Such a statement assists a full appreciation of the record of enterprise in the face of adversity which appears in the subsequent pages. The Yearbook is illustrated with spirited black and white drawings of railway scenes and the significance of the statistics quoted stands out well in a series of clever diagrams. How the American railways have grappled with the modern dilemma in such directions as efficiency of operation and economy of fuel is well known, but a less familiar figure may be that of savings in compensation paid for lost and damaged goods. The outlay for this purpose declined by approximately $3,400,000 from 1932 to 1933, although there was an appreciable increase in the quantity of freight carried.

Problems of Transport Co-ordination in India. By S. K. Guha. London: Humphrey Milford, at the Oxford University Press, Amen House, Warwick Square, E.C.4. Bombay: Humphrey Milford, at the Oxford University Press, B.I. Building, Nicol Road. 5 in. × 7¼ in. Pp. 77. Price 1 Rupee.—This handy pocket volume, which is well written and of interest to anyone studying Indian transport problems, is the précis of a course of lectures delivered, it would seem, mainly with the object of advocating the appointment—contrary to the Mitchell-Kirkness report—of a whole time permanent Transport Co-ordinating Authority similar to the American Interstate Commerce Commission, with legal authoritative powers of control independent of political influence. Such a body he considers to be essential for India at the earliest possible date, as also its being formed irrespective of future railway policy and independent of provincial interference, of road associations and of the Statutory Railway Authority, if it comes into being. A lawyer-president with a transport economist and representatives of existing means of transportation as members are recommended as constituting a suitable co-ordinating authority, which will be under the Minister of Transport only for laying down general policy. The functions of such an authority would include the supervision of licensing, time and fare tables, avoidance of duplication of transport, determination of zones and the improvement of transport generally. The subject has evidently been studied by the author very carefully and his views are correspondingly valuable, as are also the appendices to this well-produced little book.

Stellwerks und Blockanlagen. Heft 1: Mechanische Sicherungseinrichtungen. (Interlocking and Block Installations, Part 1: Mechanical Signalling Devices.) Berlin: Verkehrswissenschaftliche Lehrmittelgesellschaft, Columbus Gebäude, Potsdamer Platz. 1934. 8¼ in. × 5¾ in. 165 Pp. Price not stated, but probably 1·60 RM.—This is one of a series of instructional volumes intended for use in the schools where persons entering the service of the German State Railway in the ordinary grades receive their first training. It is clearly written in plain language, and explains the elements of mechanical signalling with the aid of photographs and simple diagrams. After a general introduction it deals with hand locking of points, wire runs and rodding, facing point locks, point equipment, compensators, lever frames, signals, key interlocking and miscellaneous devices. There is also a chapter on materials and specifications, followed by a series of questions on the subjects treated. There are 128 illustrations. The standard apparatus or "Einheitstellwerk" forms the basis of the text, but particulars of other patterns are given in certain cases where their importance warrants it. Although published comparatively recently there is nothing in the book on the three-indication distant signals already in use on several of the main lines. The second volume, in preparation, will deal with electric block apparatus and power signalling.

Report on Collective Agreements between Employers and Workpeople in Great Britain and Northern Ireland, Vol. I. London: 1934. His Majesty's Stationery Office, Adastral House, Kingsway, W.C.2. 9½ in. × 6 in. × 1 in. 454 pp. Price 7s. net.—The history of collective bargaining between employers and workpeople extends back to somewhat before the opening of the nineteenth century, and the smoothness with which the system has functioned in the intervening period, even during the rapid developments of the industrial revolution, has to some extent obscured its influence. The publication of the present series of reports has been undertaken in order to make generally available information relating to the many agreements arrived at since a similar volume last appeared, in 1910, and is additionally opportune in view of recent proposals that all provisions of collective agreements should be made legally binding upon persons engaged in the industries affected, whether parties thereto or not.

Three of the most important industrial groups, namely the mining and quarrying industries, the engineering, shipbuilding, iron and steel and other metal industries, and the building, wood-working and allied industries, are covered in the first issue of the report, which will extend to several volumes on completion. In addition to written agreements reached between employers' and workpeople's organisations meeting in their separate capacities, the decisions of permanent bodies such as joint industrial councils and joint conciliation boards are also included, the object of the report being to present as complete a picture as possible of the collective agreement situation obtaining at the beginning of May this year.

The railway industry is represented by decision No. 728 of the Industrial Court, dated July 8, 1922, and by amendments and extensions thereto, relating to the wages of British railway shopmen. Skilled shopmen employed by the railways of Northern Ireland enjoy the wages and conditions of work applicable to the local engineering and foundry trades, but various agreements reached for semi-skilled and unskilled employees between 1924 and 1929 are detailed.

Port of Vancouver, British Columbia. Vancouver, B.C., 1933: Vancouver Harbour Commissioners. 10½ in. × 8½ in. 75 pp.—The annual report issued by the Vancouver Harbour Commissioners goes further than recording the operations for the year under review, by presenting a history of the port and a summary of its facilities and combining the whole in a well-illustrated volume printed on art paper. A large folding map completes what is as much a reference book as a summary of statistics. Rail connections at Vancouver are extensive. The Commissioners' Terminal Railway links up waterfront properties with the Canadian Pacific and Canadian National transcontinental systems, and United States transport interests are represented by the Great Northern Railway and by through passenger and goods working with the Northern Pacific, Southern Pacific, and Chicago, Milwaukee, St. Paul and Pacific Railways. Three air transport companies also serve the port.

Bulletin of the Geotechnical Committee of the Japanese Government Railways, No. 3. July 1934. Tokyo: Research Office, Government Railways of Japan. 8¼ in. by 11¾ in. 209 pp. × 14 pp. Illustrated. No price stated.—The text of this collection of papers prepared under the auspices of the geotechnical committee of the Japanese Government Railways, and of reports on the proceedings of the same body, is in Japanese, but there are concise English summaries and many diagrams and photographs which make the publication of use to those unfamiliar with the language. The work of the committee, which was formed in 1930, deals with the investigation of the properties of soils in order to promote safety and economy in railway construction and operation.

THE SCRAP HEAP

A fresh argument for nudism is that it narrows the field of investigation for a lost railway-ticket.—*From "Punch."*

* * *

A NEW METHOD?

From a railway removals notice:—"Expert packing. Reduced fares for families." — *From the "Liverpool Post."*

* * *

He: "If you won't listen to me I'll throw myself in front of that train."

She: "For goodness sake give me time to think. There'll be another train in five minutes."—*From the "Midland Red Bulletin."*

* * *

OVERHEARD AT PADDINGTON

Enquirer: "Is this train going to Birmingham?"

Porter: "No, it's come *from* Birmingham; the next one——"

Enquirer: "Oh, it doesn't matter, thank you; I only wanted to know if this was the right station in case I shall ever have to go there."

* * *

BANK HOLIDAY NIGHT IN A SOUTHEND TRAIN

A struggle in a Southend train on Bank Holiday night was described at Southend Police Court.

Mrs. Annie Brown, of Chadwell Heath, and Henry Dorrington, of Dagenham, were each fined £2 and three guineas costs for interfering with the comfort of passengers on the L.M.S. Railway.

Mr. G. Orange, prosecuting, said that an excursion train left Southend at 11 o'clock on August Bank Holiday night and in one compartment all the seats were taken.

Mrs. Brown and Dorrington got in at Leigh-on-Sea, and Mrs. Brown asked for room to put her feet.

One of the passengers, a Mr. Courtenay, of Plumstead, said: "Don't make trouble. We'll find room."

Mrs. Brown's reply was to hit Mr. Courtenay on the nose. Mrs. Courtenay came to her husband's assistance, and whether or not she intended it, she hit Mrs. Brown in the eye.

Meanwhile, Dorrington was taking his coat off and struck out in all directions.

During the rumpus one of the carriage doors flew open, the communication cord was pulled and the train stopped.

The passengers declined to proceed in the same compartment as Dorrington and Mrs. Brown.

They were accommodated in the guard's van and the train went on to Benfleet where it was met by a police officer.

The policeman was interviewing the parties when Dorrington came behind him, knocked Courtenay down, and Mrs. Brown dragged him round by the hair of his head.

In the witness box both Dorrington and Mrs. Brown said that Mr. and Mrs. Courtenay started the trouble.—*From the "Evening Standard."*

* * *

VALE "VICTOR"

Victor, the famous collecting dog of Euston station, died recently. During the past seven years *Victor*, a black retriever, had collected no less than £2,700 from passengers for charity, and as a result of his efforts over 500 cases of distress caused by sickness, among the L.M.S.R. wages staff have been relieved. His passing is mourned not only by the whole of the staff at Euston, but by many regular travellers to and from the terminus. Nobody, however, will miss him so much as his custodian, Porter Edwards, affectionately known at Euston as "the dog man," who was hoping that *Victor* would eclipse the record total of £3,100 collected by his predecessor, *Roy*. The L.M.S. has appointed as *Victor's* successor a big two-year old curly-coated retriever, *Jack*, who for some little time had been acting as understudy to the older dog. *Victor* was ten years of age; his record for a week's collections was £35.

* * *

The wear of tubes, and the good performance of locomotives, depend of course greatly on the nature of the water used in them. The *Firefly* and *Skipwith* engines used in constructing the London and Birmingham Railway had a coating formed round their tubes nearly half-an-inch thick, and in consequence they were so nearly burnt through, that several broke by the force of the steam thrusting out each end of the boiler; they were not more than one-sixteenth of an inch thick where they broke, and were found with openings all round them, nearly one-fourth of an inch in width; the water being prevented from getting into them solely by the coating round the outside.—*From "Steam and Steam Navigation," by John Scott Russell*, 1841.

* * *

We are indebted to the Editor of the *L.M.S. Magazine* for the interesting photograph of the old Ashby and Ticknall tramway which we reproduce below, and also for the following notes which appeared originally in that magazine over the initials "A.B.L.":—

The Ashby-de-la-Zouch and Ticknall tramway, perhaps one of the most curious little railways in the country, was officially closed in September, 1914. It was originally laid by Benjamin Outram in 1799, and is situated partly in Leicestershire and partly in Derbyshire; its length is 4 m. 35 ch. The primary object of the tramway was to provide for the conveyance of coal, lime, and other minerals for Ticknall and the places in between.

The track, now grass-grown, and in parts obliterated, begins a mile and a half out of Ashby, branching off the modern Derby-Ashby line of the L.M.S.R. (opened in 1869) at a point where the latter comes out of a tunnel. From this point the tramway takes a serpentine course through a cutting and under a stone bridge in the vicinity of Staunton Harold. Farther on, between two deep cuttings, there is a stone tunnel 48 yd. long. It then continues along meadowland and through a brick tunnel which passes under the park at Calke Abbey. It crosses the main street at Ticknall by a stone bridge and terminates in some abandoned limestone quarries on the north side of the village.

The latter-day rolling-stock of this quaint tramway was one wagon, which held about 15 cwt. It was of wood and well made, and was drawn by a horse over cast-iron flanged plates. These plates had a ledge or flange upon the inner side to keep the flat wheels of the wagon upon the track. Steam traction was never used. A typical specimen of this ancient flange-rail is preserved, among other interesting railway relics, at the Derby Railway Institute.

Course of part of old Ashby and Ticknall tramway track near the latter place

OVERSEAS RAILWAY AFFAIRS

(From our special correspondents)

Satisfactory year in Queensland—Nuremberg traffic concentration—The Vatican Railway — French locomotive rebuilding success and fast trials for new steam service—Through Cairo-Khartoum railway-cum-air service—Committee to co-ordinate Algerian transport

QUEENSLAND

Successful Operating Results

The financial results of working for 1933/34 were the most satisfactory for many years, and in fact, the £1,715,528 excess of revenue over working expenses was the greatest ever recorded in the history of the railways. The gross revenue amounted to £6,118,898 and the working expenditure to £4,403,370, so that as the interest on capital (reduced some years ago) was £1,567,320, the net profit amounted to £148,208.

All classes of traffic contributed to the improvement in earnings, but the pronounced increase in passenger business, notwithstanding the continued growth of motor competition, is particularly gratifying. At the present time traffic is especially active, and all employees are enjoying full time, or better, for the first time in the past three or four years A revival in the building industry is one of the best signs of a return to more prosperous times. The Government has announced a modification of the percentage deductions from salaries and wages which have operated for about four years.

Increased Traffic Demands New Engines and Stock

The expansion of business—especially long distance passenger traffic between north and south—necessitates the provision of additional engine power and passenger vehicles. Authority was given recently for the construction of twelve additional locomotives, six of the "B18¼" (4-6-2) passenger type, and six "C19" (4-8-0) goods engines, all of these to be built in Queensland. The passenger locomotives are to be built in the Ipswich workshops at an estimated cost of £52,500, and the goods engines will probably be constructed by Walkers Limited, of Maryborough, which firm has built many locomotives for the Department.

Two new complete passenger trains for use on the 1,041-mile coastal section from Brisbane to Cairns are also to be constructed in the Ipswich shops. Thirty carriages in all will be turned out, comprising nine first class sleepers (two berth cabins), nine second class sleepers (three berth cabins), three parlour cars, three dining cars, and six lounge cars. When these trains are running it seems probable that a daily northern passenger service will be inaugurated—at all events during the winter tourist season.

SOUTH AFRICA

Granet Commission Report

The report of the commission appointed to investigate the financial position and working of the South African Railways has now been issued. The composition of the commission was as follows: Sir Guy Granet (Chairman); Herr Hans Meyer (Member); Mr. Charles Hood Sutherland and Herr Fritz Nobbe (Assistants). [The report is summarised on pages 457 and 458 of this issue and we comment editorially upon the findings on page 450.—ED. *R.G.*]

Motor Car Traffic

The number of motor cars despatched by rail from Port Elizabeth during May, 1934, was 2,367, being an increase of 1,783 compared with May, 1933, and representing the highest number for any one month since April, 1929.

GERMANY

A Triumph of Organisation

The German State Railway was set a formidable task in the transport of the 500,000 participants in the National Socialist Party Conference at Nuremberg from September 4 to 10. Some 524 special trains were provided to cope with this influx, which in a few days concentrated itself on one single city. The Stadium station at Nuremberg-Dutzendteich was rebuilt, at a cost of 2½ million marks, and at the Nuremberg Main and Rangier stations, and numerous other neighbouring stations, it was found necessary to make alterations in the railway track, to cope with so great an increase in traffic. Additional safety devices and increased railway telephone services were also installed.

Some 2,100 new timetables for the special trains had to be worked out in addition to 1,100 illustrated timetables. The 22 service arrangements alone took up 4,790 sheets, with an edition of nearly 1,000 copies. The climax of the organisation was the Reichs Party Day, when, including the 524 specials and the ordinary trains, some 770,000 visitors were brought to Nuremberg on the one day. A succession of scheduled express trains ran in duplicate and altogether 600 locomotives were used. During the whole of the Reichs Party Day, Dr. Dorpmüller, General Manager of the German State Railway, and his deputy, Dr. Kleinmann, personally superintended the traffic in Nuremberg.

ITALY

The Vatican Railway

The Italian *Official Gazette* recently published the text of the convention between the Vatican and the Italian Government relating to the Vatican Railway. The convention consists of ten articles and two appendices. Article 3 stipulates that for the time being the Vatican station is reserved for the departure and arrival of trains in the service of the Pope, or of other being, the Vatican station is reserved proceed to and from the Vatican station. Article 4 stipulates that the running of trains in the service of the Pope is to be regulated in accordance with the rules relating to the trains of heads of states, whilst the regulations for the other trains are contained in one of the appendices. By Article 9 the Italian Government undertakes to supply all rolling stock, the Holy See paying for its use and for the services of the staff. A sum of 500 lire is payable by the Holy See for the upkeep of the signalling apparatus which controls the connection between the Vatican station and the State Railway station, Rome—San Pietro. It is further provided that the Vatican and the Italian Government shall each nominate a functionary to be jointly in charge of the services and responsible for discipline on the Vatican Railway.

The photographs reproduced on page 466 show the station building and the sliding door built in the wall surrounding the Vatican State, to close the arched railway entrance which has a width of 16·70 m. (54 ft. 9 in.) Another illustration shows the viaduct of eight spans of 50 ft. carrying the new railway. Its construction was abnormally difficult owing to the unstable soil, which necessitated very deep foundations, in the case of the second pier as deep as 75 ft. The cost of the line which is only 862 m. (942 yd.) long was 24 million lire (about £420,000).

Level Crossings

There are about 20,000 level crossings on the State Railways. Of these 2,700 are attended and about 8,000 unattended (in compliance with a law of 1920); the remainder are either entrusted to private residents nearby or are provided with gates or barriers which are opened and closed by mechanical action from a distance. The increase of motor road traffic has been responsible for a large number of accidents and the State Railways have reinstated a number of gatemen at crossings subjected to considerable

road traffic. But in addition a number of over- and under-bridges have been constructed. Also the State Road Board has built a number of these bridges in cases where the roads come under the reconstruction scheme which the Road Board is executing on a large scale throughout the country. In other instances a triple signalling system at unguarded level crossings has been installed which consists in the ringing of a bell, the moving of a special signal arm, and the appearance of a red light at night. The road bye-laws published a few years ago made it compulsory for all motorists to reduce speed on approaching level crossings, so that their cars could, if necessary, be stopped almost dead without fouling the track. This law was, however, of no avail in the face of the reckless driving of motorists, and the State Railway Administration has therefore decided to provide gatemen for all level crossings. The thousands of gate houses throughout the country are, therefore, now again being occupied and many new quarters are being built in places where such did not exist before. Only married couples are being engaged to ensure a continuous day and night service.

FRANCE

Rebuilding Etat Pacific Locomotives

The French State Railways, having achieved notable success with their Pacific locomotives experimentally rebuilt on the same principles as those of the Paris-Orleans Company, have recently transformed an additional 25 such locomotives. All these are fitted with poppet valve steam distribution to the low-pressure cylinders, Houlet superheaters, Kylchap blast pipes, and large direct steam passages. As so rebuilt, these locomotives are able to take an additional 100 or 150 tons on the fastest schedules without additional coal consumption. The programme of rebuilding these locomotives was carefully arranged, in such a way that between December 15, 1933, and the middle of June, 1934, the whole 25 were dealt with in the shops at Sotteville, Rouen. The average time per locomotive was just over two months.

Fast Calais-Tourcoing Trial Run

Further speeding up of fast trains on the Nord is contemplated, according to a recent statement by M. Le Besnerais, the General Manager. A test run was made on Wednesday, September 12, between Calais and Tourcoing near the Belgian frontier. A train made up of two first class coaches only left Calais at 1.05 p.m. and arrived at Tourcoing at 2.17 p.m. For the greater part of the journey the speed was about 75 m.p.h. The average was a little more than 68½ m.p.h. Instead of entering Lille station, the train was switched on to the Tourcoing line at La Madeleine and then resumed its high speed in the direction of the Belgian frontier. M. Le Besnerais and other officials on the train expressed satisfaction with the result of the trial run.

Financial Matters

The budget of the State Railways for 1934 shows a total expenditure of fr. 2,923,127,000, leaving a deficit of fr. 813,372,000 to be made up by the Common Fund of the French railways. The budget of the Alsace-Lorraine lines shows expenditure of fr. 1,154,561,000 with a deficit for the Common Fund of fr. 170,799,000.

French traffic returns continue to show decreases in comparison with last year. The total decrease this year down to September 2 is fr. 294,556,000. The receipts in thousands of francs for the various lines compare as follow:—

	1934	1933	Decrease
Alsace-Lorraine ..	497,700	513,537	15,837
Est	1,003,441	1,057,572	54,131
Etat	1,166,240	1,203,248	37,008
Nord	1,117 800	1,177 377	59,577
P.O.-Midi	1,474,404	1,525,007	50,603
P.L.M.	2,032,360	2,109,760	77,400
Total	7,291,945	7,586,501	294,556

THE FAR EAST

Hangchow Bridge

The estimated cost of this bridge is $5,000,000 and this is to be borne equally by the Ministry of Railways and the Chekiang Provincial Government. Tenders for its construction were to have been opened on August 22.

The Yushan-Nanchang extension of the Chekiang-Kiangsi Railway is to be specially expedited and completed within 18 months' time.

For the month of June the Nanking-Shanghai Railway showed an increase in receipts of 21·45 per cent., and the Shanghai-Hangchow Railway one of 4·63 per cent., as compared with June, 1933.

EGYPT

Rail and Air Co-operation

Since 1852, when Egypt first adopted railway transport, the country has always maintained her communications up to the level of other countries in modern equipment and service to the public. This regular progress is now manifested in the recent decision of the Egyptian Railway Board approving an arrangement made between the Egyptian State Railways, the Misr Airworks, S.A.E., and the Sudan Railways, whereby regular composite rail and air services will be operated during the coming winter season between Cairo and Khartoum and vice versa. The present and only form of land travel between these two capital cities is by the E.S.R. from Cairo to Shellal, Sudan Government steamers from Shellal to Wadi Halfa, and from that latter point to Khartoum by the Sudan Railways. In this way the approximately 1,350 miles are covered in 93 hours. The new arrangement provides that passengers travel by sleeping car on the E.S.R. from Cairo to Luxor, fly by Misr Airworks machines from Luxor to Wadi Halfa, and complete the journey by the restaurant and sleeping car trains of the Sudan Railways. The timing for the journey has thus been reduced to 45 hours, a saving of over 50 per cent.

The following comparative statement shows the old and new time tables for the journey.

New Rail and Air Services				
Cairo	dep.	Saturday	19·30	E.S.R. sleeping and restaurant car express
Luxor	arr.	Sunday	07·30	
Motor to Aerodrome and breakfast in Luxor				
Luxor	dep.	Sunday	09·20	E.S.R. and Misr-airworks air services
Wadi Halfa	arr.	Sunday	12·55	
Wadi Halfa	dep.	Sunday	13·40	Sudan Railways restaurant and sleeping car express
Khartoum	arr.	Monday	16·40	
Total time, 45 hr. 10 min.				
Existing Rail and River Services				
Cairo	dep.	Saturday	19·30	E.S.R. sleeping and restaurant car express.
Shellal	arr.	Sunday	11·55	
Shellal	dep.	Sunday	14·00	Sudan Government steamers
Wadi Halfa	arr.	Tuesday	11·00	
Wadi Halfa	dep.	Tuesday	13·40	Sudan Railways restaurant and sleeping car express
Khartoum	arr.	Wednesday	16·40	
Total time, 93 hr. 10 min.				

Despite this great saving in time the cost of the journey will not be seriously higher. The first class fare, including sleeper and other supplements, between Cairo and Khartoum by the rail-river service is at present L.E.21-285 m/ms. The corresponding fare using the new rail-air service will be L.E.23-000 m/ms.

Misr Airworks, S.A.E., with which the Egyptian State Railways are co-operating in providing the air link between Luxor and Wadi Halfa for the new services, was formed some two or three years ago by the Bank Misr in conjunction with Airwork, Ltd., of Heston. It has been remarkably successful, considering the short time in which it has been established. Already regular services are being worked between Cairo and Alexandria, Cairo and Port Said, Cairo and Mersa Matruh, and Cairo and Palestine.

ALGERIA

Transport Co-ordination

With a view to reducing the heavy burden of Algerian finances, the French Government has decreed the formation under the Governor-General of a committee whose duty will be the co-ordination of all forms of transport in Algeria. The committee will comprise an independent chairman, three members nominated by the railways, and three by road interests. If the rail and road interests cannot agree in the choice of the chairman, the appointment will be vested in the Governor-General. All members will be appointed for an initial term of three years. No new transport service will be permitted henceforth without the authorisation of the transport committee.

SOUTH AFRICAN RAILWAYS—GRANET COMMISSION REPORT

A summary of the report issued by the South African Railways Commission which recently assembled in the Union and was presided over by Sir Guy Granet, C.B.E., Director of the L.M.S. and Central Argentine Railways and sometime General Manager of the late Midland Railway

(*From our South African correspondent*)

THE report of the commission appointed to investigate the financial position and the working of the South African Railways has just been issued. As will be remembered, the commission was composed of the following: Sir Guy Granet (Chairman) and Herr Hans Meyer, as Member, with Mr. Charles Hood Sutherland and Herr Fritz Nobbe, as Assistants.

At the outset of its report the commission refers to the character and condition of the country over which the railways operate. The fact, it points out, that the interior of the country, in which are situated many of the most important industrial centres, forms a high tableland—the rise from the coast being in some places very rapid and even mountainous, necessitating heavy railway gradients and many expedients for modifying the effects of broken country on railway operation—is a great handicap, and results in slower-moving trains and longer train running times, accompanied by relatively high operating expenses.

Dealing with the population, the report states that the railways are, to a large extent, dependent on sixty per cent. of the European population for the bulk of their traffic. The question that confronts them from a transport point of view is that most of the producing centres are the furthest from the coast, thus necessitating haulage over long distances. In fact, the report refers to the generally difficult conditions of a railway service in South Africa and to successes achieved.

Conclusions and Recommendations

Briefly, the conclusions and recommendations contained in the report are as follow:—

In view of the existing financial position of the undertaking, no change in tariffs is advocated, but the commission is of opinion that in the event of the administration receiving financial relief in respect of interest charges, the tariff policy, as affecting the higher-rated classes of goods should be reconsidered.

Mechanical Workshops

Other matters for consideration are the closing of East London as an independent mechanical workshop, as a measure of economy, the work to be allocated to other workshops, and the rebuilding of the Pretoria workshops in the near future. The commission is of opinion that there is a *prima facie* case for considering the question of concentrating repairs to steam locomotives and coaches at the Durban mechanical workshops and the discontinuation of this work at Pietermaritzburg; also, that the improvements contemplated at the Germiston wagon repair shop should be delayed until the possibility of, and the requirements for, introducing the progressive system of repairs, are clearly established. Adequate telephonic facilities should be provided to facilitate railway working generally.

Dealing with the question of electrification, the commission holds the view that, apart from the possible extension of the existing electrification schemes, the density of traffic is insufficient to justify further large schemes of main line electrification. It also advocates the policy of sending officers overseas from time to time to study railway methods in other countries.

In dealing with the financial position, it is pointed out that the large deficit of the railways is due mainly to the world-wide depression in trade and that with an improvement in trade conditions the financial position of the administration of pre-depression days would be rapidly restored. The public debt of the Union at March 31, 1933, was £272,133,818, so that more than half the public debt was represented by an investment which in a year of unexampled and world-wide depression gave a return of more than 3½ per cent. It is concluded that the interest charges of branch lines constructed since Union place an undue burden on the administration.

Capital

Dealing with capital per mile, the report states that (*a*) the interest-bearing capital, including the £13,000,000 odd, is equivalent to £12,300 a mile, and (*b*) the total capital expenditure is equivalent to £13,100 a mile. Even after allowing for the fact that the standard gauge in South Africa is 3 ft. 6 in. and that 884 miles of track are of 2-ft. gauge, the figures compare favourably with those of any other countries the Commissioners know.

Rates

Special attention is drawn to the position of the Rates Equalisation Fund, which was established out of Railway and Harbour revenue for the purpose of maintaining, as far as possible, uniformity of rates, notwithstanding fluctuations in traffic. During the period 1915-26, when the fund was exhausted, there were large increases followed by large decreases of rates. The commission is in entire agreement with the objects of such a fund and recommends that it be replenished by regular annual contributions of, say, 1 per cent. of the gross revenue of the undertaking until it reaches a total of £2,000,000.

"The subject of rates raises questions of great complexity and difficulty," continues the report. "The representatives both of industry and of agriculture want lower rates. The industrialists—especially those representing gold mining and coal mining—put before us instances of rates which they describe as 'punitive' and declared that these rates were placing such an undue burden on their industry as to result in a restriction of their activities. The agriculturists asked for still further reductions in the rates for the conveyance of agricultural produce.

"There is a striking disproportion between the revenue contributed by the relatively small tonnage of high-rated traffic and that produced by the large volume of low-rated traffic, and it is not difficult to understand the sense of grievance of the industrialist."

No Change in Tariffs Recommended

"We are satisfied that any attempt to adjust the balance by making any material increase in the tariffs on agricultural produce would fail, because the traffic could not bear any such increase. On the other hand, any material

decrease in the higher class goods would lead to a loss in revenue which, in present circumstances, the railways could not suffer without having to contemplate a deficit in their working. We cannot see any justification for a further reduction in rates for the conveyance of agricultural produce."

Dealing with the suggestions that a Railway Rates Tribunal should be created to hear and determine complaints by railway users against railway rates, the commissioners say that this seems to have the support of a considerable body of commercial and industrial opinion in the Union. With regard to the question of appeals against rates, to an impartial outside tribunal, the commission does not favour such a proposal and sees no ground for recommending it.

"We think," it adds, "that, as the railways enjoy the benefit of being treated as a State Department and so avoid all payments for customs and licences for their motor vehicles, it is not either unreasonable or contrary to 'business principles' that they should perform free services for other Government departments and administrations."

Dealing with the subject of the employment of Europeans on unskilled work in the railway service, the commission states that it is difficult to assess in pounds, shillings and pence the cost of white labour as compared with native labour, having regard to certain factors mentioned. The view, however, is held that there are distinct economic advantages in employing Europeans in preference to natives.

Organisation

A chapter of the report is devoted to organisation, and, after considering the matter in all its aspects, the commission concludes unhesitatingly that the existing system is the one best suited to the circumstances and conditions affecting the railways and harbours in South Africa. It does not recommend any change in the main structure of the system organisation, but it adds that there are several weak links in the chain of management and suggests remedies. The commission recommends the appointment of a science research officer.

Locomotives and Workshops

In regard to locomotives, it is considered desirable and possible for the number of classes to be reduced, and the opinion is expressed that about 20 to 25 standard classes of locomotives would meet adequately all the requirements of the South African Railways. It would take some time for this reduction to be accomplished. Commenting on the operation service of the railways, it is remarked that in the construction of locomotives, results have been obtained which have surprised and interested railway experts from other countries.

On the matter of workshops, the commission considers that improvements in output could be effected by changes in the internal organisation of each workshop, and it is of the opinion that an assistant to the Mechanical Engineer should be appointed at each workshop. The commission further considers that an improvement in the organisation could be effected by the amalgamation of several correlated shops into one branch with a works manager in charge who would be responsible for ensuring co-operation between the shops and for uniformity in their management. The commission recommends the appointment of two works managers under the Mechanical Engineer to supervise and control the two separate branches of each workshop, namely, the locomotive and the carriage and wagon branch.

The commissioners strongly recommend the continuation of the policy of eliminating or easing the heavy gradients and sharp curves by the construction of deviations. It also recommends that the sleeper plantations belonging to the Administration should be disposed of at the best prices obtainable and that the difference between the realisable value and the balance sheet value of £533,849 be written off.

Road Services

The commission found that road motor services acted mostly as feeders to the railway in areas not served by railways, and that if the road services were viewed from the standpoint of a separate commercial undertaking, the position was that the actual earnings based on the existing charges were insufficient to cover working expenditure. It has been represented to the commission that the railway classification and rates should be applied to the road motor services, but, as this would result in the services being operated at a loss after allowing for contributory value, it does not recommend such a change. The report then proceeds:—"Dealing with the Administration's road motor services on their merits, we have formed the opinion that the operation of these services has been justified and that the Administration, in introducing these developmental services, has considerably assisted in opening up new areas and stimulating agricultural development in other areas."

Grain Elevators

With regard to grain elevators, the commission states: "Of the total expenditure of £1,948,072 on grain elevators, an amount of £865,654 represents interest charges, so that there has been an actual working profit, after meeting £373,419 depreciation charges, on the operation. There is no doubt that the installation of grain elevators has been the means of effecting definite savings and that the elevator system is an advantage to the country as a whole."

Speeding-Up Traffic between Preston and Blackpool, L.M.S.R.—An important scheme of signalling alterations involving over 280 miles of wiring has been carried out by the L.M.S.R. between Preston and Blackpool with a view to expediting train working over this exceptionally busy section. The scheme affects 46 signal-boxes and includes, in addition to 225 miles of aerial and external wiring, and 55 miles of wiring in signal-boxes, 350 electric lever locks, 1,350 relays, 226 signal repeaters and light indicators, 19 illuminated diagrams in signal-boxes, and 189 track circuits. A new excursion platform 785 ft. long has been provided at Blackpool North.

As a result of this scheme 14 additional trains proceeding from Blackpool towards Preston can now be accommodated, and 10 in the opposite direction. Trains for Blackpool can thus be cleared more rapidly through Preston, while departures from the Blackpool termini can be made more frequently.

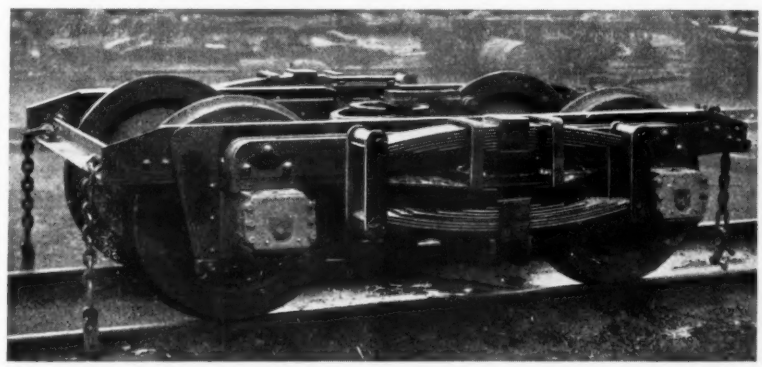
The scheme comprises the removal of starting signals at certain signal boxes to a position about ½-mile ahead of the respective home signals. Additional track circuits have also been installed at home and starting signals, making it unnecessary for trainmen to go to the signal box if a train is stopped at the signal. The total number of track circuits installed at these signals and at junctions is 189. On all passenger lines between Preston and Blackpool L.M.S. standard interlocking block has been provided. The scheme, which has been carried out by the L.M.S.R. Signal and Telegraph Engineer's Department, has taken five months to complete.

NEW SOUTH AFRICAN ROLLING STOCK

Passenger and goods stock at present in hand or recently completed at various S.A.R. workshops

IN the Overseas columns of THE RAILWAY GAZETTE of February 16 last the programme of construction of new coaching stock for the South African Railways was outlined. The 42 saloons mentioned are, it may be recalled, mounted upon the new type of bogie described on page 693 of our issue of November 10 last, but a few more details of this and the accompanying illustrations of it have now come to hand. The long semi-elliptical bearing springs are spaced at 7 ft. 4 in. centres which adequately prevents body rolling. Also it will be seen that the crossbars have been fitted below the solebars; this was decided upon after certain difficulties had been experienced. Both these members are of 8 in. × 3 in. channel section and are connected together by a large ½ in. gusset plate (see Fig. 1). The crossbars are further tied together, underneath, by a 1½ in. bolt, which also acts as a bolster safety strap. The bolster is constructed of 9 in. × 3 in. channel section with ½ in. gusset plates top and bottom. The double eye brackets at the ends are of 1 in. plate (Fig. 2).

The semi-elliptical springs consist of 8 plates, ½ in. × 5½ in., which are straight when free, and have a 3½ in. deflection under a load of 7½ tons (*i.e.*, under a coach of 85,000 lb. tare). The top spring rests in a special shoe which in turn rests on a knife edge casting on the large gusset plate of the bogie frame. The bottom spring buckle has an eye through which it is coupled to the bolster ends by a 2 in. diameter pin. The top and bottom springs are compressed into position by a clamping tool before being coupled together by the links. The cast steel knife edge has a ½ in. flat, which was found to be quite sufficient to negative any periodic transverse oscillation of the bolster. End clearance allows the bolster to move transversely 2 in. a side which is more than is required by usual running conditions (no bolster check springs are used).



Side view of new bogie

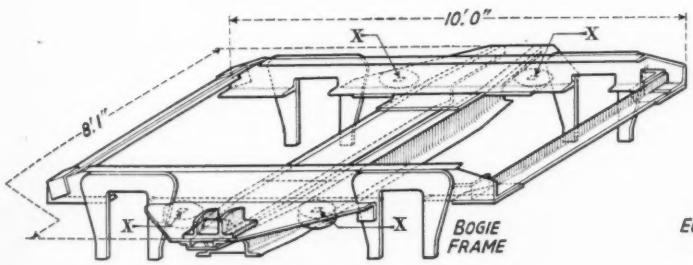


FIG. 1.

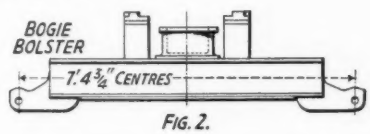


FIG. 2.

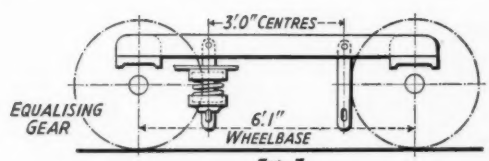
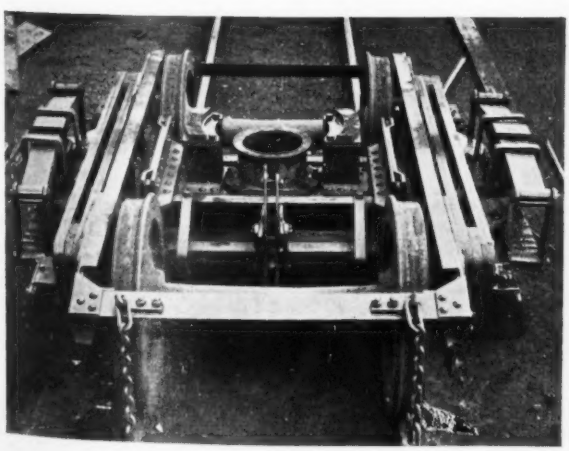


FIG. 3.



End view of new type S.A.R. bogie

The bogie frame is supported at points X (Fig. 1) by the helical springs of the equalising gear. A beam which rests on the axleboxes has hangers at 3 ft. centres carrying the nests of springs which consist of two coils of 1¼ in. diameter and 1 in. diameter wire and 7¾ in. and 5¼ in. mean diameters respectively, 10 in. free height and 7¾ in. in position under the coach. The spring hangers are of the cottered type, adjustment for height being made by packing in the deep spring cups. Further, the clearance between equalising beam and frame allows the springs to be fitted without initial compression. Other details are rigid supports for brake gear rigging to prevent brake

block chatter and groaning; 11 in. diam. bogie flat centre bearing, safety straps for top and bottom springs; standard rolled sections extensively used and all heavy forgings eliminated. For comparative purposes it may be mentioned that the corresponding figures of the existing standard bogies (M.C.B. type) are:—3¼ in. total elliptical spring deflection, 48 in. transverse spacing of springs, and bolster links 11 in. long with 1½ in. inclination.

Mineral and Goods Stock under Construction

In THE RAILWAY GAZETTE of March 2 last, the programme of goods stock construction was also outlined as comprising, for the moment, 941 vehicles of 11 different types, seven bogie and four four-wheeled, and in addition 500 drop-sided steel wagons. Of these, work is now in hand upon orders for the whole of the latter and for 200 type B.B.3 high-sided, 50 type A.8 and 60 type A.9 hopper wagons.

The 200 B.B.3 type vehicles under construction at Durban workshops are designed for coal traffic and have a capacity of 47⅓ tons and a tare of 19¾ tons. The centre longitudinals are approximately the shape of fish-bellied girders, and are built up of angle and plate. Standard rolled sections have been used wherever possible in their construction.

The inside dimensions are: Length 40 ft. 0 in., width 8 ft. 0 in., and height of sides 5 ft. 10¾ in. The bogies are of the diamond frame type with 11 in. × 5½ in. journals. The bogie centres are of the oil bath type.

Two Hopper Types

The 50 wagons of the A.8 hopper type are under construction at Germiston workshops, and these also are for the conveyance of coal, and have bottom discharge doors. In the construction of the underframe of this type a complete departure from usual practice has been made. The longitudinals have been dispensed with, and the body is carried on a soleplate riveted to the solebars, which have been raised to suit. The drawgear is carried on a lower longitudinal riveted to an upper longitudinal which runs from headstock to bogie crossbars. Through the raising of the solebars access to drawgear, &c., is facilitated. The bogies are of the diamond frame type with 11 in. × 5½ in. diam. journals. The bogie centres are of the oil bath type with a capacity of 5 pints, and the use of the bogie centre pin has been eliminated. Standard rolled sections have been used throughout in the construction of these wagons.

The 60 wagons of the A.9 hopper type have recently been completed at the Germiston workshops. Ten of these were constructed for the Iron and Steel Corporation at Pretoria West and the remainder for the railway administration. These are specially designed for the conveyance of iron ore, the design is the same as that for the coal hopper wagons, except that they are shorter by reason of the fact that the iron ore to be conveyed is approximately 5 tons heavier than coal. They are to carry a load of 50 tons and have a tare of 16½ tons.

In addition 500 four-wheeled drop sided wagons of all-steel construction are to be built during the current year in the S.A.R. workshops, and it is anticipated that on completion of this order a further 1,500 wagons of the same type will be authorised. The inside dimensions are 22 ft. 0 in. × 7 ft. 11 in. × 3 ft. 9 in. high, wheel base of 11 ft. 0 in., capacity 17¾ tons, tare 9½ lb., journals 10 in. × 5 in. Double action semi-elliptical bearing springs are used to overcome any tendency to derail. Standard rolled sections have been used wherever possible in the construction of these wagons.

Railway Enterprise in Face of Road Competition

THE July-August issue of the *Bulletin le l'Union Internationale des Chemins de fer* publishes a summary of reports received from affiliated railways on the measures taken during the past year to counter road competition. As was to be expected, the extension of cheap travel facilities figures in every instance, but it has been equally widely recognised that merely to attract more passengers is only half the battle, and that more money may be lost by the increased activity of staff, locomotives and rolling stock that is necessary to handle the traffic thus stimulated than is gained by the increase, if any, in receipts. This is by no means intended to disparage the value of excursion traffic, for the excursionist of to-day may be the full fare passenger of to-morrow. Indeed, praiseworthy enterprise on the part of some countries in the creation of inducements to travel have been rewarded not only by trains filled to capacity, but by reaping a profit on their operation despite the very moderate fares. Examples given are the "mystery trains" of the Austrian State Railways, and it is to be noted that similar excursions to undivulged destinations have proved very popular wherever introduced on the Continent. The Belgian National Railways have introduced a feature which is a novelty at least to excursion travel in a train known as the Radio, the passengers on board which are entertained by wireless programmes and news bulletins.

But the most important influence of road competition on the railways is seen in the acceleration and intensification of train services, both by the widespread introduction of railcars and the operation of lighter and faster trains with curtailed station stops. These developments have been recorded in THE RAILWAY GAZETTE as introduced, and the report gives a satisfactory impression of the success with which they have been attended. Accelerated services by electric trains have also contributed towards stemming the diversion of traffic to the roads, and the Nederland Railways report that on the Haarlem-Ymuiden branch of the Rotterdam-Amsterdam line, road competition, once very severe, has almost entirely disappeared.

Behind the outward manifestation of faster running, of course, there has been the spadework of timetable reorganisation, and as an indication of the standards kept in view may be quoted the instance of the Danish State Railways, where the service interval for heavily charged sections of line was calculated according to the normal length of trains. Various other measures have been taken in different parts of Europe to stimulate ordinary, as opposed to excursion or cheap fare, travel. Norway has concluded agreements with a large number of road companies operating to and from railway stations. Through tickets by rail and road are issued, thus approaching closer to door-to-door transport for passengers as well as goods. Good results are reported from this development. Hungary extends the "holiday-season" system with books of tickets picturesquely entitled "Five Days in Budapest," allowing unlimited travel all over the country during the period of validity. The same country issues combined rail-air tickets between Budapest and Vienna, offering similar facilities to those introduced by Railway Air Services Limited in this country this year.

EXTENSION OF PARKESTON QUAY, HARWICH, L.N.E.R.

To cope with expanding traffic the L.N.E.R. has now provided additional passenger and goods accommodation at Harwich by extending the quay 1,120 ft. westwards. The extension is fully equipped with cranes, as shown in the illustration opposite

THE first quay built at Harwich by the former Great Eastern Railway to accommodate its Continental traffic was completed in 1883; the structure is in timber, and still in use. This was extended in 1906 by some 1,100 ft. westwards, carried out in concrete. The quay as then completed was sufficient for the traffic offering until about five years ago. In 1930, however, it was hardly adequate to cope with the demands made upon it, and consequently the L.N.E.R. decided that a further extension westwards was essential.

The General Design

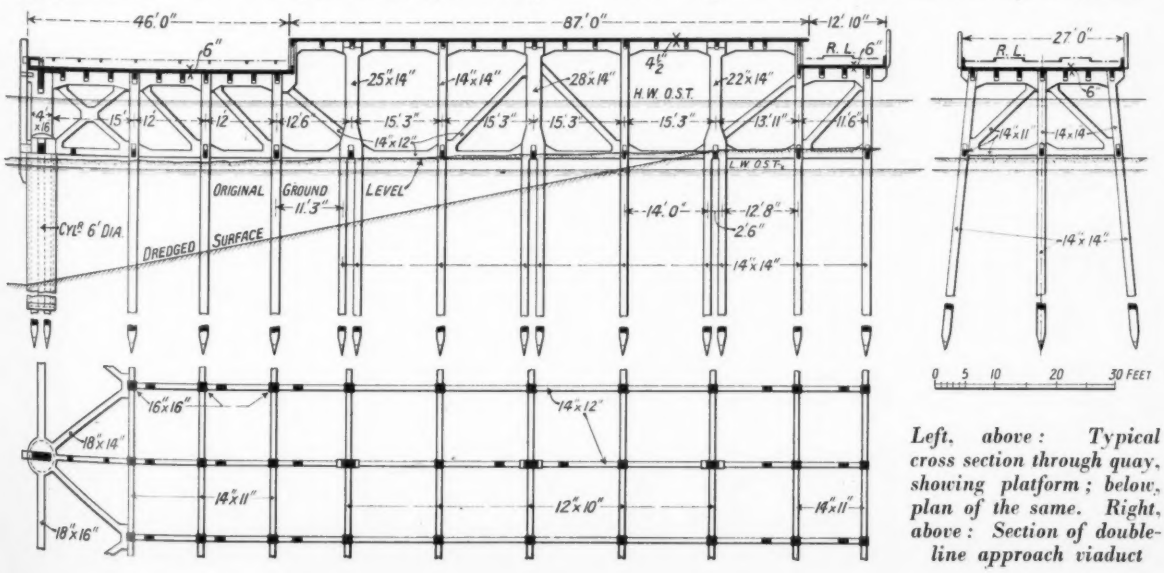
Plans were therefore prepared for the erection of a reinforced concrete quay extension having a river frontage of 1,120 ft. and a cross sectional width of 146 ft., after the river bed had been dredged so that vessels drawing 20 ft. of water could berth alongside it at any state of the tide. The quay extension connects with the old quay at the eastern end of the former, and westwards with the shore by means of two viaducts, approximately 500 ft. in length, the northern one carrying two goods tracks and the southern a single passenger road; their widths are 27 ft. and 16 ft. respectively.

Actual work was begun in October, 1931, with the dredging of the river bed. The spoil was pumped through a 24-in. pipe into the western half of a pond about half a mile to the south-west, this half being segregated from the eastern half by a newly-constructed cross bank. The embankments leading to the viaducts were made of filling brought by ballast train from Ipswich, where additional sidings in cutting were required for the Royal Show. Simultaneously with the dredging work the concrete piles were pre-cast; these were over 1,400 in number and 14 in. × 14 in. × 40 ft. in length. So, when dredging was completed in December, 1931—by which time some 282,000 tons had been excavated from the river bed—pile-driving was started at once.

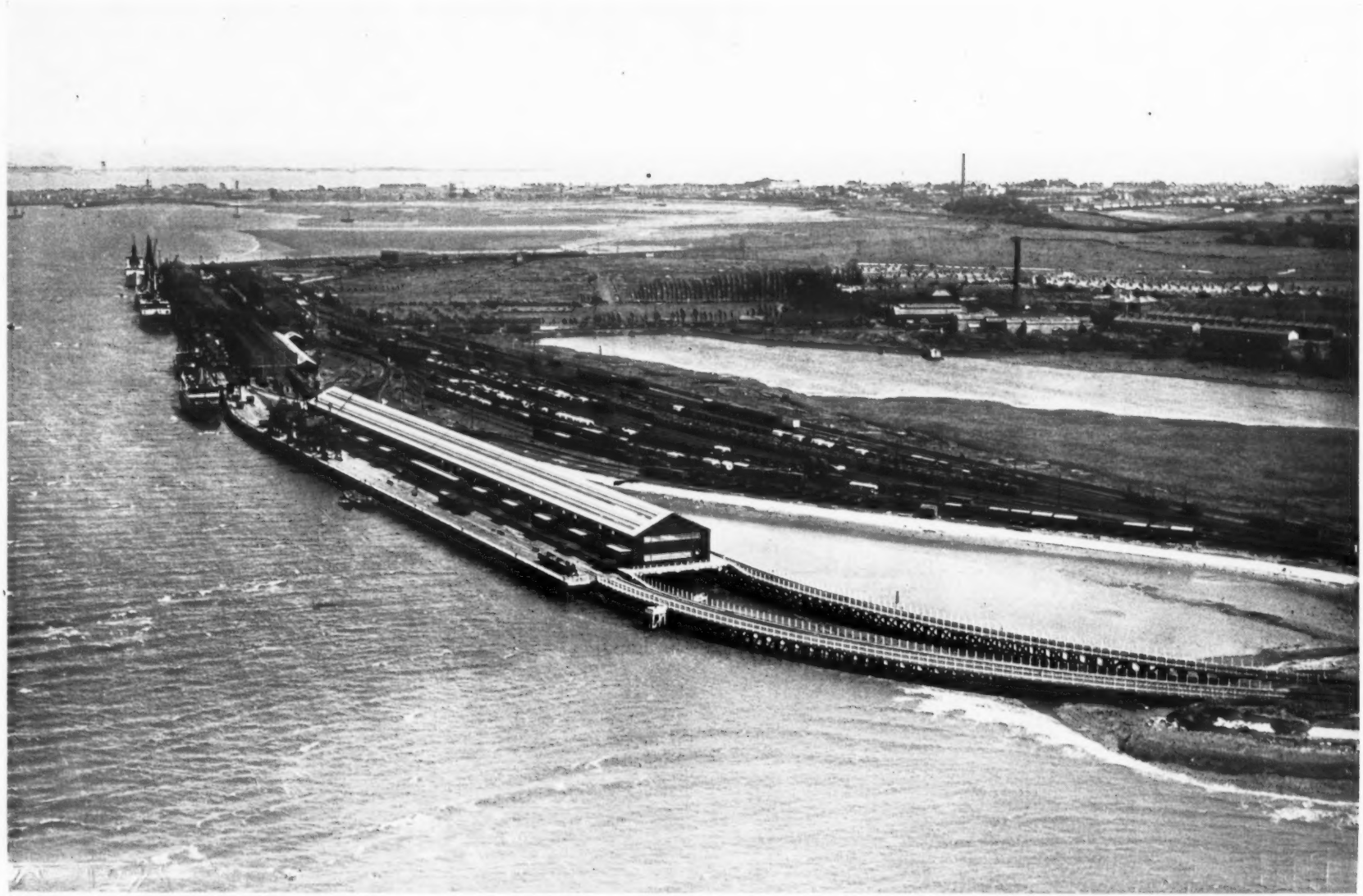
Pile Driving

This extensive work was carried out by first driving wooden piles to form a temporary staging at the west end of the old quay, from which permanent reinforced concrete piles were subsequently driven. The work was afterwards divided into three sections, work being simultaneously in progress from the west end and in the centre as well as from the east end. At the west and centre the temporary stagings were driven from barges. The stagings were moved forward as the permanent pile-driving progressed.

The driving was carried out with ordinary timber-frame

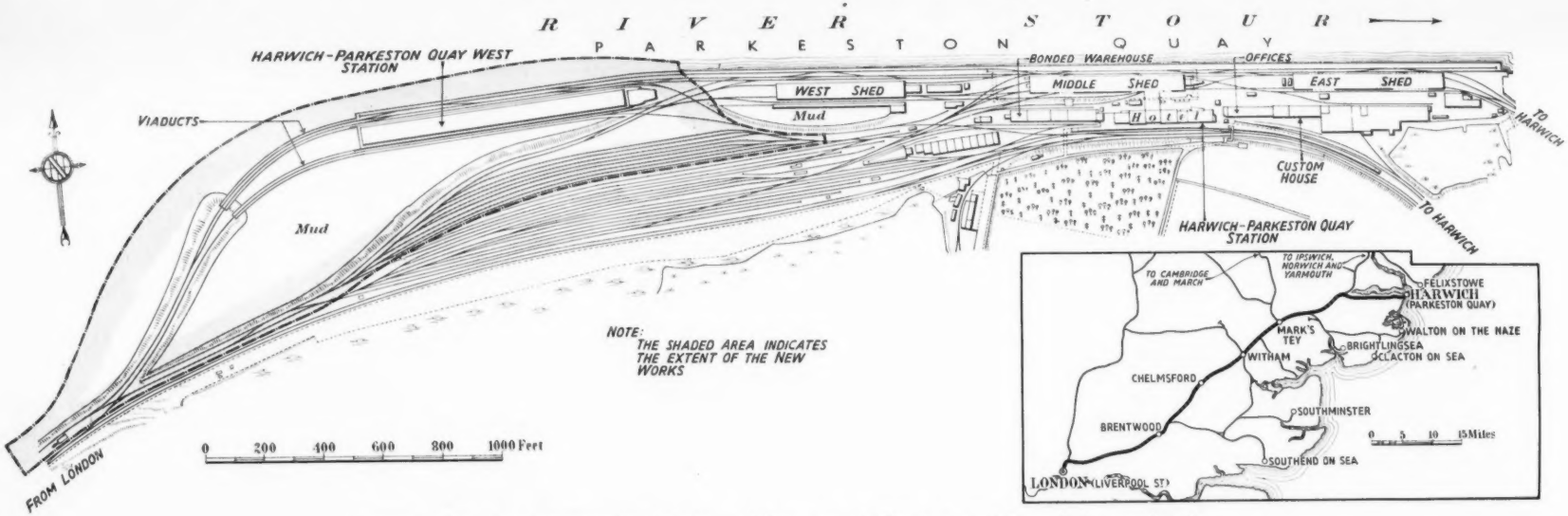


Left, above: Typical cross section through quay, showing platform; below, plan of the same. Right, above: Section of double-line approach viaduct

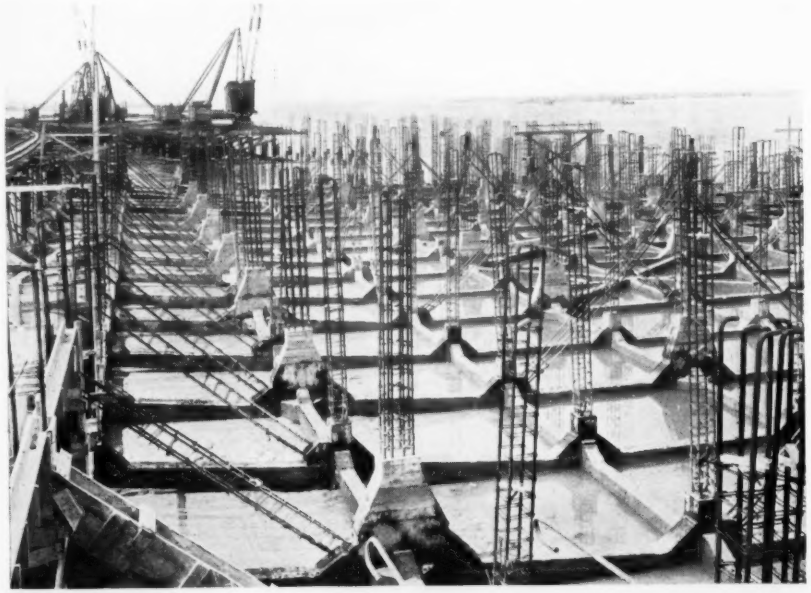


General view of the extended quay from the west. In the right foreground are the two approach viaducts, the nearer (double line) serving the goods side of the quay and river face, and the farther single-line one serving the passenger platform, at the back of the shed. Beyond and to the left is the 1906 *quay extension, and above that again the original* 1883 *quay. In the middle background are the goods lines behind which is the eastern half of the pond referred to in the text, the western half having been reclaimed by the dredging operations*

the western half having been reclaimed by the dredging operations

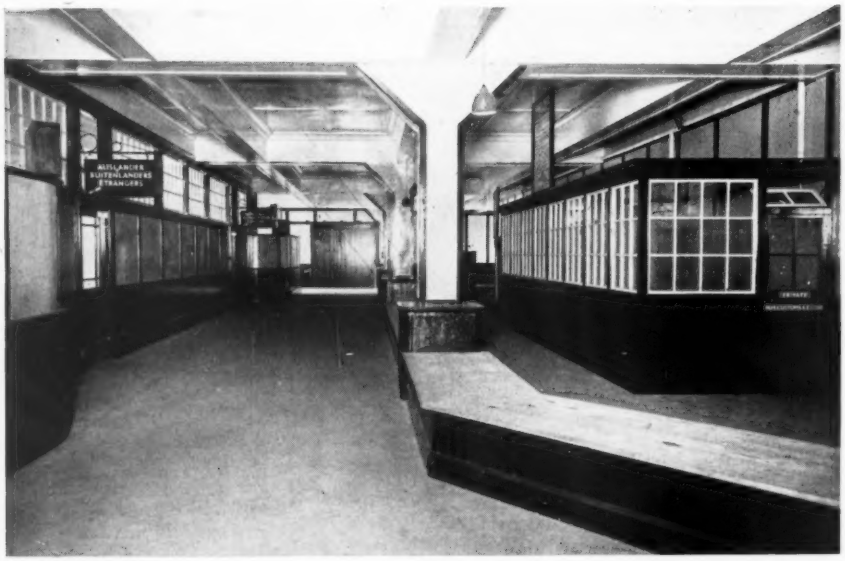


General plan showing extension works and key map indicating position relative to London



Reinforcing to concrete work above piling at low water

General view of construction work from extreme west end



Left: Part of ground floor of shed devoted to Customs examination of passengers' baggage

Below: Upper floor of shed for goods warehousing, reached by six lifts from quay level

Right: Passenger platform for arriving and departing boat trains, situated at back of shed away from quay face. Note the use on the notice board of the recently-recommended signs for international passenger routes; the L.N.E.R. standard Gill lettering; and latest form of lighting

drivers fitted with 3-ton steam hammers. Penetration specification laid down that in the last 15 blows with the hammer, falling 2 ft. 6 in., penetration was not to exceed 1 in. It may here be mentioned that all concrete for whatever purpose on this work was mixed in the following proportions:—2·5 cu. ft. cement, 7 cu. ft. aggregate and 3 cu. ft. of sand. The cement used was of the ordinary rapid hardening variety supplied by Imperial Chemical Industries Limited. Except in pre-casting the cylinders, which are described below, where steel was used, wooden shuttering was used throughout, as also was ordinary round-section reinforcement. The 40-ft. piles were driven about 16 ft. into the river bed, the last 7 ft. being into ballast and the remainder through silt.

As will be seen from the drawings reproduced, there are at 25 ft. centres along the face of the quay, groups of two piles. Over these were lowered pre-cast r.c. cylinders about 28 ft. long, 6 in. thick, and having an external diameter of 6 ft. The bottoms of these were sealed with concrete in bags and the whole interiors of the cylinders filled up solid with concrete, prior to the provision of concrete caps. The remainder of the piling comprises ordinary single piles, as shown in the drawings.

Decking

To carry the decking and its substructure of r.c. bracings and girders, the steelwork of each pile was exposed for 3 ft. from the top downwards, and on this an extension was built up as a column to deck level *in situ*: in fact, all concrete work except the piles was cast *in situ*. The decking is 6 in. thick and is supported on longitudinal secondary beams spaced at about 5 ft. intervals; these in turn are carried by the main beams resting on the piles. The diagonal and other deck substructure is clearly shown in the cross section, and the plan shows the arrangement of the pile bents relative to the cylinders and quay face. Three expansion joints are provided in the main quay and two in the viaducts, a 2 in. gap being covered over with a mild steel cover plate laid in a recess. A cross section of the double-line approach viaduct is shown in one of the drawings reproduced. Australian brush box fendering, 16 in. × 16 in., is provided in front of every main trestle of the quay.

Throughout the work only one unforeseen difficulty was encountered. Near the west end of the old quay piles had to be driven through an old retaining wall which had slipped forward. This was done by jumping or punching through the wall a specially shod timber pile so as to make a hole for each permanent r.c. pile.

The quay itself, some 6,000 sq. yd. in extent, is finished with tar macadam. A crane track on its surface bears nine electric cranes, three of 5 tons and six of 1½ tons capacity. A treble line of railway track runs the whole length of the quay, and electric capstans for the movement of wagons are provided.

Upon the extension is built a two-storey transit shed, 900 ft. long, 63 ft. wide, and 45 ft. high, constructed as far as possible of fireproof materials, and having a floor area of about 2½ acres. On the ground floor the middle portion of the shed affords space for the passenger accommodation. A large hall, with customs offices, baggage examination space, and rooms for the officials engaged in the performance of the Home Office immigration formalities, leads from the quay front to the passenger platform, which has been named Harwich-Parkeston Quay West. It is 920 ft. long, is equipped with booking office, money exchange, parcels and inquiry offices, and a spacious refreshment room. The signs, direction and indicator boards are of the most modern type, conforming to the models recently recommended for international passenger routes by the International Union of Railways, of which the L.N.E.R. is a member. The signs were illustrated in THE RAILWAY GAZETTE of January 8, 1932, pp. 44 and 45.

The remainder of the lower storey and all the upper floor is designed for the handling of goods traffic, and there are galleries on the seaward side to which traffic can be landed by crane to the upper floor, where are customs offices and spaces for the examination of imported traffic. Six electric lifts connect the two floors.

Mess-room accommodation is provided for 200 men. It is completely equipped with a locker for each man, modern electric cookers and boilers, and is electrically heated.

The station lighting has been carried out on the principle followed at the stations on the Shenfield widening, which was fully described in an article in THE RAILWAY GAZETTE of May 25 last. A new sub-station houses the switchboard and transformers necessary for the supply of current to the cranes, capstans, lifts and mess-room, and for the lighting and heating of the premises.

The extension scheme has entailed considerable alteration and additions to the permanent way in the marshalling yard and sidings which serve the quay. Seven additional sidings have been constructed, giving an additional wagon capacity of 387 wagons.

The dredging was carried out by K. L. Kalis & Co., of Stone House, Bishopsgate, E.C.2. The Yorkshire Hennebique Contracting Co. Ltd., of Kirkstall Road, Leeds, were contractors for the construction of the reinforced concrete quay and viaducts; and Inns & Company, Bank House, 286, Pentonville Road, N.1., were contractors for the paving. The general contractors for the construction of the buildings on the quay extension were George Longden & Son, of Neepsend, Sheffield. The sub-contractors were the following:—

Steelwork: The Tees Side Bridge & Engineering Works, Limited.
Corrugated sheeting: The Wolverhampton Iron Co. Ltd.
Roof glazing: Mellowes & Co. Ltd.
Roof covering: Turner's Asbestos Cement Company.
Cranes: Stothert & Pitt, Limited, Bath; Ransomes & Rapier, Limited, Ipswich.
Capstans and fairheads: Cowans, Sheldon & Co. Ltd., Carlisle.
Cables: The Hackbridge Cable Co. Ltd., Hackbridge.
Mercury arc rectifiers: The English Electric Co. Ltd., Stafford.
Switchgear: The British Thomson-Houston Co., Ltd., Rugby.
Electric cooking stoves and heating boilers: Carron Company, Carron; The General Electric Co. Ltd., London.
Electric radiators: Bellings, Enfield, Middlesex.
Crane plug boxes: Siemens Bros. & Co. Ltd., Woolwich.
Electric lifts: The Keighley Electrical Engineering Co. Ltd., Keighley.
Cement: Imperial Chemical Industries, Limited, London.

The completed extension constitutes one of the most up-to-date examples of quay construction and equipment on the East Coast. Parkeston Quay, which is only 68 miles from London, and with direct passenger and goods train services to and from the Midlands and North, is very conveniently situated for the accommodation of steamship services with the nearer and northern European ports; and the new works will offer such facilities as it is confidently hoped will attract additional steamship lines to the port. There is a safe entrance harbour, enabling vessels to enter during any weather and at any state of the tide. Shipowners can rely upon low quay dues at Parkeston Quay, and the Harwich harbour dues are particularly light, being at present only ½d., less 10 per cent., per net registered ton. Although international trade is suffering from the general economic situation, it is bound sooner or later to recover, and, with its new quay at Harwich, the L.N.E.R. is well equipped to offer modern facilities for both expansion of existing trade services and the accommodation of new.

THE VATICAN RAILWAY

(see paragraph on page 455)

It is expected that the Vatican Railway will be used on September 23 for the first time, when Cardinal Pacelli leaves for Buenos Aires for the opening of the Eucharistic Congress

Above: Eight-span viaduct carrying the Vatican Railway over the Gelsomino valley up to the sliding-door gateway into Vatican precincts. St. Peter's in the background

Right: Vatican Railway station building

Left: Gateway in the Vatican with sliding door built in the wall surrounding the Vatican, which admits the railway to the Vatican station

RAILWAY NEWS SECTION

PERSONAL

We are glad to learn that Lord Hirst, who underwent a serious operation on September 12, is making satisfactory progress towards recovery.

The Rt. Hon. Sir Robert Horne, C.B.E., K.C., M.P., Chairman of the Great Western Railway, has accepted the Presidency of the Railway Convalescent Homes for the year 1935.

Mr. H. G. Drury, M.V.O., who was Superintendent of the Line, Great Eastern Railway, from 1897 to 1904, entered his 96th year on Sunday last, September 16. He was elected a Member of the Retired Railway Officers' Society in 1905 and was Chairman during the years 1911-1913. The society, in offering heartiest congratulations and best wishes for a continuance of good health to Mr. Drury quoted the following lines from Euripides:—

It is a good thing to be rich,
And a good thing to be strong,
But it is a better thing to be beloved
by many friends.

We regret to learn of the recent death of Herr Carl Eduard Zix, Chief Designing Engineer at the Vereinigte Eisenbahn-Signalwerke, Berlin-Siemensstadt. Herr Zix entered the service of Siemens and Halske in 1896, also gaining experience with the well-known firm of Jüdel at Brunswick, and at the Bruchsal Signal Works. Eventually he became Chief of the Signal Department Drawing Office of the Allgemeine Elektrizitäts Gesellschaft, and introduced that company's all-electric power signalling system. He left to go into business as a consulting engineer, but later obtained the post of Chief Designer in the Signal Department of Siemens and Halske and held it for some twenty years. Numerous appliances bear the marks of his knowledge and skill, and he did much towards the development of power and colour light signalling. He was also mainly responsible for the so-called multiple row locking frame, several of which are now at work.

INDIAN RAILWAY STAFF CHANGES

Mr. B. L. Harvey has been appointed to officiate as Deputy Chief Engineer, Hardinge Bridge Construction, E.B.R.

Mr. A. V. Venables, M.C., V.D., Officiating Agent, E.I.R., has been confirmed in that appointment with effect from July 15.

Mr. W. A. Moyers, B.A., B.A.I., M.Inst.C.E., who, as announced in our issue of August 3, has been appointed Chief Civil Engineer, South African Railways and Harbours, was educated at Rathmines School, Dublin, and graduated at Dublin University in Arts and Engineering. He went to South Africa in 1910 for Pauling & Co. on the construction of the Selati Railway. Mr. Moyers joined the service of the South African Railways and Harbours Administration as District Engineer on the George-Oudtshoorn Railway construction and was transferred to Idutywa as Acting Resident Engineer in 1913. He returned to England in 1915 for war service, was granted a commission in the Royal Engineers Railway Construction Troops in January, 1916, and served on the Western Front mainly in the Ypres area until the Armistice; he was mentioned in dispatches. Following demobilisation in June, 1919, with the rank of Major, he returned to South Africa and was appointed Engineer-in-Charge of the Mooi River-Escourt doubling of the line. In 1920 he became Resident Engineer at Pietermaritzburg Station Yard and in that and the following year was Resident Engineer on the Nottingham Road-Ladysmith survey and the Cato Ridge-Clairwood deviation. Mr. Moyers was appointed in 1922 as Resident Engineer in charge of the electrification of the Natal main line from Pietermaritzburg to Glencoe, a distance of 172 miles; in 1925 became Professional Assistant to the Chief Civil Engineer with headquarters at Johannesburg; and in 1928 Inspecting Engineer at the same centre. His recent appointment as Chief Civil Engineer, in succession to Mr. G. H. Whitehouse, dates from July 1 last.

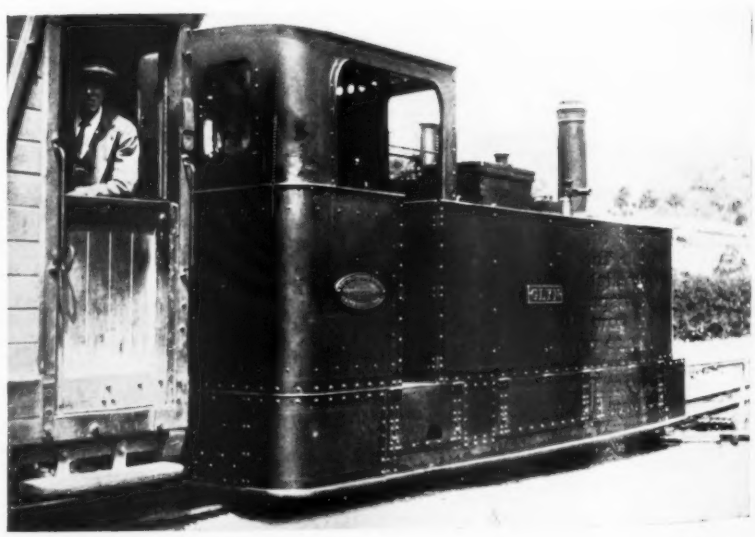
Mr. W. A. Moyers, B.A., B.A.I., M.Inst.C.E.,
who has been appointed Chief Civil Engineer, South African Railways and Harbours

CENTENARY OF THE LEEDS & SELBY RAILWAY.—On September 22, 1834, a train, consisting of three first class carriages in yellow livery and six open vehicles, conveyed 156 passengers on the first railway journey from Leeds to Selby. The train started at 6.30 a.m. from Marsh Lane station—a huge shed built at a cost of £10,000—and soon came to a stand outside the 700-yard Richmond Hill tunnel, owing to the engine wheels failing to grip the line, slippery with rain, on a gradient of 1 in 218; with the aid of ashes the train was started again and eventually reached Selby in 2½ hr. The return journey was done in 1 hr. 16 min. and the locomotive *Nelson* (built by Fenton, Murray & Jackson) steamed into Marsh Lane to the acclamation of about 50,000 people. The Leeds & Selby Railway Company, which was incorporated on May 29, 1830, was the surviving portion of a scheme of 1824 for a Leeds to Hull railway. On the completion of a double line of rails, goods traffic was inaugurated on December 15, 1834. On July 1, 1840, the Hull and Selby line was opened, but until that date the route from Leeds to Hull was by train to Selby and thence by steam packet down the Ouse; the river was tidal but the sailing times were fixed, consequently the packet occasionally went aground and the arrival time at destination was a matter of considerable uncertainty. As from November 9, 1840, the Leeds & Selby Railway was leased for £17,000 per annum to the York & North Midland Railway, which purchased it in 1844. The York & North Midland became one of the main constituents of the North Eastern Railway in 1854.

Train of bogie steel hopper wagons used for permanent way ballast from Meldon Quarry, Southern Railway. These trains, which are equipped with continuous brakes, are run at comparatively high speeds

Left: Standard type of light sectional railhead warehouse as adopted by the L.M.S.R. It can be quickly erected alongside any suitable siding, and is constructed of asbestos sheeting on timber framing, with a roof covered with Ruberoid. The smallest size is 12 ft. wide by 30 ft. long, but this can be increased on the unit system

Right: The "Glyn" of 1890, one of the three Beyer, Peacock tramway type six-coupled engines of the 2 ft. 4½ in. gauge Glyn Valley Tramway (see editorial note on page 448). Each has 2 ft. 6 in. coupled wheels, 10½ in. by 16 in. cylinders, and a working pressure of 140 lb. The total heating surface is 271 sq. ft., of which 29 sq. ft. is contributed by the firebox. The picture shows on the left the booking office window in the end of the passenger brake van, a unique method of collecting fares at unstaffed stations used during the 55 years in which steam passenger trains ran



The Winter Timetables

The following notes cover various changes of importance which are being introduced with the winter timetables at the beginning of next month.

London & North Eastern Railway

In the L.N.E.R. winter train service, effective from October 1, a feature of interest is the retention of certain main line services which, throughout the years of depression, have operated during the summer only, and during the winter have been combined with other trains. These include the 5.39 p.m. express from King's Cross to Hull, and the corresponding train due in London from Hull at 1.15 p.m.; the 10.10 a.m. and 1.30 p.m. from Edinburgh to York, relieving the Flying Scotsman and the 2.5 p.m. express respectively; and the 12.25 p.m. from Liverpool Street to Yarmouth, Lowestoft, and Cromer. The up Flying Scotsman is to reach King's Cross at 5.40 instead of 5.45 p.m., running from York to Grantham in 90 min., and from there to London in 112 min. As regards branch services, the gap between 6.45 a.m. and 12.30 p.m. in the service from Darlington to Penrith is broken by the reinstatement of the pre-war 10.5 a.m. train, with a return train from Penrith at 1 p.m. Restaurant and buffet services are increased by the provision of restaurant cars on the 3.15 p.m. from Liverpool Street to Yarmouth—a long-felt want—working up on the 6.28 a.m. from Yarmouth to London; and a buffet car on the 11.30 a.m. from Liverpool Street to Ipswich enables similar provision to be made, from Ipswich, in the case of the 2.37 p.m. from Yarmouth to London; buffet cars are also attached to the 8.13 a.m. from Clacton to Liverpool Street, the 6.39 p.m. from London to Clacton, and the 8.55 a.m. from York to Newcastle. The 9.13 a.m. from Southend to Liverpool Street is to start 5 min. earlier, and call at Wickford. In Scotland the southbound Queen of Scots will leave Glasgow at 10.20 a.m., omit the Polmont stop, and make a 55-min. run to Edinburgh; and new services are being introduced at 11 a.m. from Glasgow to Edinburgh, and 8.30 a.m. from Edinburgh to Glasgow. A new winter Sunday restaurant car service is run from Glasgow at 10.25 a.m. to Newcastle, returning at 8.4 p.m. No accelerations of any consequence are included in the winter arrangements.

London Midland & Scottish Railway

Beyond the continuance throughout the winter of the 5.40 p.m. summer arrival at Euston of the up Royal Scot, which, as usual, retains its non-stop booking over the 299 miles from Carlisle (Citadel) to Euston, there is scarcely a single alteration of any concern in the L.M.S.R. winter timetable. The 5.35 (late 5.30) p.m. from Sheffield to St. Pancras is to call at Bedford, and is due in London at 9.2 instead of 8.53 p.m., while the 12.10 p.m. from Glasgow (St. Enoch) to St. Pancras reverts to the 9.15 p.m. arrival at St. Pancras to which it worked before the 1932 accelerations. The 5.50 p.m. from Manchester to St. Pancras will call additionally at Luton, and not arrive until 10.10 p.m. The 10.30 a.m. from Euston is to run in two portions daily, at 10.30 a.m. for Crewe, Manchester and East Lancashire and at 10.40 a.m. for Stafford (considerably improving the morning service to that place), Liverpool, Birkenhead, and North and Central Wales, as is customary during the summer months. the new Fylde Coast Express, relieving the 1.15 p.m. into Euston, continues to run, but is to be withdrawn at the end of the year.

Great Western Railway

An important alteration which is to take effect with the introduction of the Great Western winter train services is that the boat train for the Channel Islands, running on Tuesday, Thursday, and Saturday nights, will no longer be attached to the 9.25 p.m. from Paddington, but will run as a special at 10.15 p.m., and will take the direct Lavington route from Reading to Westbury, including a 61-min. run over the 59·6 miles from Reading to Westbury. In this way the service will be accelerated by 50 min. Another valuable improvement is that the 3.15 p.m. from Bristol to Paddington will leave at 3.10 p.m., call as previously at Bath, Chippenham, and Swindon, running thence non-stop to Paddington in 77 min. (77·3 miles), so arriving at 5.35 p.m., 40 min. earlier—a net gain of 35 min. There will be a connecting train from Swindon, in the previous times, calling at Didcot and Reading and reaching Paddington at 6.15 p.m. There is to be a further extension of buffet car services, in some cases in substitution for previous restaurant car workings which were only lightly patronised. New services introduced in the summer time-table, such as the 9.40 a.m. from Paddington to Cheltenham, and the return train at 4.20 p.m., and the railcar services between Birmingham, Gloucester, Newport, and Cardiff, are to be continued, as also is the acceleration of the 9 a.m. from Bristol to Paddington, and other quickened trains. On the other hand, last year's slowing by 5 min. of certain of the Birmingham two-hour services from and to London (including, paradoxically enough, the two trains in the down direction which are normally the lightest of the day) still remains unaltered.

Southern Railway

The Southern winter timetables perpetuate those of last winter practically without alteration, save that the speed-up introduced with the summer service between Bournemouth and Weymouth becomes permanent, Weymouth having now all-the-year-round 3 hr. services to and from Waterloo.

Railway Staff Statistics of 1855

The writer of a letter to the editor of the *Southern Railway Magazine* quotes the following interesting statistics from a book of the eighteen-fifties entitled "The Christian Philosopher," by Thomas Dick, LL.D. :—

It appears that on June 30, 1855, the following persons were employed on the railways of the United Kingdom then open for traffic, namely :—

204	secretaries and managers
33	treasurers
140	engineers
356	superintendents
193	storekeepers
181	accountants and cashiers
823	inspectors or time-keepers
2,183	masters of stations
322	ticket collectors
153	draughtsmen
7,732	clerks
1,132	foremen
3,157	engine-drivers
3,488	deputy drivers or firemen
3,237	guards or brakesmen
21,247	artificers
2,836	switchmen
2,470	gatekeepers
1,622	policemen
14,498	porters
7,172	platelayers
22,449	labourers
2,324	miscellaneous adjuncts.

This makes a grand total of 97,952, against 90,409 on June 30, 1854, namely, 80,877 in England, 11,403 in Scotland, and 5,672 in Ireland. The length of line open for traffic was 8,116 miles, and the number of stations, 2,798. The total number of persons employed on railroads not open, on June 30, 1855, amounted to 38,546 persons :—

104	secretaries	110	clerks
16	treasurers	601	foremen
181	engineers	216	policemen
238	superintendents	47	porters
83	storekeepers	4,962	artificers
55	accountants	31,370	labourers
331	inspectors	171	adjuncts
61	draughtsmen		

The total number of persons employed on all railways, open or not, was, on the said June 30, 1855, 136,498, against 135,810 in 1854, and of these 104,292 were employed in England, 17,388 in Scotland, and 14,818 in Ireland.

[At the present time both the L.M.S.R. and L.N.E.R. employ staffs considerably in excess of the 1855 totals for the whole country; the figures at March 11, 1933, were 215,509 and 166,714 respectively. On the same date the total for Great Britain was 566,300, and a year earlier 597,971. ED. *R.G.*]

New Grimsby Fish Dock Completed

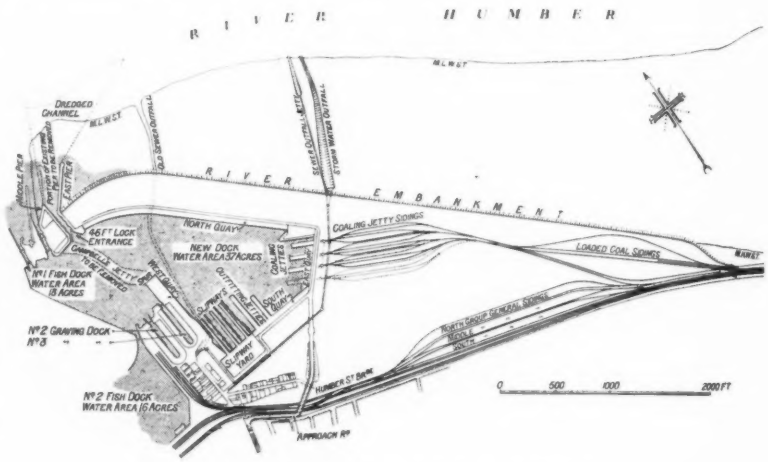
The new 37-acre fish dock constructed by the joint enterprise of the L.N.E.R. and the Grimsby Corporation at an estimated cost of between £1,600,000 and £1,700,000, will be opened for traffic by the Rt. Hon. Sir Henry Betterton, Bart., C.B.E., on October 4. The principal features of the dock and certain aspects of the work of construction were described in THE RAILWAY GAZETTE of June 23, 1933, from which issue the accompanying plan is reproduced.

The history of the scheme dates back to before the war, when the Great Central Railway obtained Parliamentary sanction to undertake the extension in 1912. A contract was about to be placed in 1914, but the outbreak of hostilities compelled the abandonment of the project. The proposal was revived by the Grimsby Corporation and the trawler owners after the absorption of the Great Central Railway into the L.N.E.R. group, with the result that in 1928 it was arranged that the dock should be built by the corporation, borrowing money for the purpose, and that the L.N.E.R. should undertake to rent it for a sum equivalent to the annual interest and sinking fund payments on the loan, the dock to become the company's property on full repayment. In June, 1930, Sir John Wolfe Barry & Partners were jointly appointed to carry out the work by the L.N.E.R. and the Grimsby Corporation. The main contract was let to Sir Lindsay Parkinson & Co. Ltd. in November of the same year, as has already been recorded in THE RAILWAY GAZETTE, and the first sod was cut on the fifth of that month by the late Lord Faringdon, Deputy Chairman of the L.N.E.R.

The new fish dock has been built on the foreshore to the east of the existing docks, and it now communicates with the existing No. 1 fish dock by the removal of the greater part of Campbell's jetty (see plan), bringing the total water area of the fish docks up to 66 acres. This, however, is only a small part of the space enclosed by the mile and a quarter embankment which had to be constructed to hold back the River Humber before excavations could be begun, the whole site thus reclaimed totalling 175 acres. The area not occupied by the docks is used for additional sidings and will be available for future industrial development.

In our earlier article the length of the south quay of the new dock was estimated as being 460 ft., but this has had to be increased to 690 ft. in the completed structure. It has two reinforced concrete outfitting jetties, one equipped with a 15-ton and one with a 5-ton crane. There are three slipways communicating with a 10-berth slipway yard, the latter having berths of a side traversing pattern patented by Mr. A. Henderson, M.Inst.C.E., of Henderson & Nicol, Consulting Engineers, Aberdeen, who were responsible for the design of all the machinery. Three coal hoists for transferring coal direct from the railway wagons to the trawlers are provided and are capable of coaling six vessels simultaneously. A five-span reinforced concrete bridge carries the road to the docks over the main railway lines and sidings.

The main quay—built, like the south quay, of reinforced concrete—is approximately 2,000 ft. long, and is intended to accommodate trawlers after they have discharged their cargoes or when taking on stores. Minor repairs can also be carried out at the quay. Both the south and main quays are 75 ft. wide, the rear portion of 25 ft. carrying a roadway.



Plan of new L.N.E.R. fish dock at Grimsby

RAILWAY AND OTHER REPORTS

Barsi Light Railway.—A final dividend of 3½ per cent. on the ordinary stock is recommended, making 6 per cent. for the year to March 31, 1934, the same as a year ago.

Manila Railway Co. (1906) Ltd.—The directors recommend a dividend of 3 per cent. for the year ended June 30, 1934, on the 5 per cent. non-cumulative preference capital. This is the same as for the previous year.

San Paulo (Brazilian) Railway.—In the absence of any adjustment in the tariffs based on exchange below 4d. to the milreis, and consequent on the continued low rate of exchange, the directors have decided to await the result of working for the whole year before making any declaration of dividend on the ordinary stock.

Murex Limited.—The directors recommend a final dividend of 2s. a share on the ordinary shares, making 35 per cent. for the year ended June 30 last, in contrast with 30 per cent. for 1932-33. They state also that, owing to continued expansion of the business, additional capital is again required, and it is proposed to offer rateably to the ordinary shareholders a further 90,000 ordinary shares of 10s. each at an issue price of £4 a share. As soon as the final instalment of this new issue has been paid, it is intended to make a bonus issue of fully paid ordinary shares of 10s. each to the ordinary shareholders on a share for-share basis, sufficient of the company's reserves being capitalised for the purpose.

British Insulated Cables Limited.—An interim dividend of 5 per cent on the ordinary shares is being paid, the same as a year ago.

United Steel Companies.—The directors recommend a dividend of 5½ per cent., the first distribution to be made by the company. Profit for the year ended June 30 is £947,680, against £351,438 for 1932-33.

Peruvian Corporation.—No payment of interest will be made on the first mortgage 6 per cent. debentures on October 1. Resolutions were passed in January, 1933, which provided *inter alia* that for a period not extending beyond December 31, 1935, interest on these debentures should be cumulative but payable only out of earnings of the company and its subsidiaries.

British Aluminium Co. Ltd.—The directors have declared a dividend at the rate of 6 per cent. per annum on the preference shares for the six months ended June 30, 1934, to be paid on October 1 next. It has been decided to await the full year's trading results before consideration of the payment of a dividend upon the ordinary share capital. Last year the interim ordinary dividend was deferred, but 5 per cent. was paid for the whole year.

NOTES AND NEWS

The Institution of Locomotive Engineers.—The opening general meeting of the 1934-5 session will be held on Thursday, September 27, at 6 o'clock p.m., in the hall of the Institution of Mechanical Engineers, Storey's Gate, London, S.W.1, when the presidential address will be delivered by Mr. H. N. Gresley, C.B.E., Chief Mechanical Engineer, L.N.E.R.

Large Works Outing by L.M.S.R.—Over 3,000 people are expected to travel in six special L.M.S. trains on one of the largest works outings on record—that of the Austin Motor Company's employees from the Birmingham district to Blackpool to-morrow (September 22). The six special trains, each of which will be equipped with a buffet car, will start from Birmingham, Northfield, Redditch, Lifford, Stourbridge, and Worcester respectively.

Scenic Excursions by Diesel.—During the past summer, regular scenic excursions have been run by the L.N.E.R. from Scarborough to Pickering, thence over the Goathland moors to Whitby, and back along the coast line to Scarborough. The service has been worked by the Armstrong-Whitworth 250 b.h.p. diesel-electric railcar *Tyneside Venturer*, which, between July 9 and September 14, has covered approximately 3,300 miles on this duty. Since the conclusion of the summer timetables, the *Tyneside Venturer* has been set to work in the York area.

Prizes for Best Kept Stations, L.N.E.R.—A record number of entries was received this year for the best kept station competition in the North Eastern Area, L.N.E.R. Judging has now taken place and special class A prizes have been awarded to Monkseaton, Thornton Dale, and Wharram stations, and special class B prizes to Carham, Goldsborough, and Grinkle stations. First class prizes have been awarded to 18 stations, second class to 15, third class to 46, and fourth class to 89. We referred on p. 442 of last week's issue to the awards in the Southern and Southern Scottish Areas.

New Railcar Services on the Etat.—The management of the French State Railways is contemplating the inauguration next spring of an accelerated railcar service between Paris and Dieppe, which will form the French link in the Victoria-Newhaven - Dieppe - Paris service. According to present plans, the time from Paris to Dieppe will be reduced to 90 min. from 138 min., giving an average speed of 70 m.p.h. It is probable that these runs will be made by Bugatti cars, of which five power and three trailer vehicles are on order. Consideration is also being given to the establishment of a further high speed service between Paris and Dieppe to be worked by 32-seat Michelines. The first of the 500 b.h.p. twin-unit Renault diesel railcars, with a maximum designed speed of 87 m.p.h., is to begin working between Paris and Caen on October 8. It underwent an official trial trip between Paris and Deauville on August 23.

The Glasgow Collision.—Another passenger having died as a result of the injuries he received in the collision of September 6, the death-roll is now six passengers and three enginemen.

G.W.R. Stationery Department.—As from Monday last, September 17, the address of the G.W.R. Stationery and Printing Department is Westbourne Terrace, London, W.2, instead of 66, Porchester Road, W.2. The goods entrance is 18, Bishop's Road, W.2.

Travel to Marseilles Fair.—From September 15 to 30, Marseilles is holding its international fair, where products of the home and colonial markets are displayed. Return tickets issued by any P.L.M. station for Marseilles from now until September 30 will be available until October 1.

North Shields and Tynemouth Exhibition.—More than 400 exhibits ranging from a copy of the earliest map of the Tyne to models of modern railway rolling stock, were displayed at the North Shields and Tynemouth Exhibition, which was opened on Wednesday in the Stephenson Street Congregational Church Halls by Councillor S. Holmes, Mayor of Tynemouth. The exhibits were arranged to show the general historical development of the town and its social development.

L.M.S.R. Amateur Dramatic Society Production.—On Monday and Tuesday, October 8 and 9, the L.M.S. Railway (London) Amateur Dramatic Society will produce "The Farmer's Wife," a comedy in three acts by Eden Phillpotts, at the Cripplegate Institute Theatre, Golden Lane, E.C. All seats will be numbered and reserved and tickets at 5s., 3s. 6d., 2s. 6d., and 1s. 6d. may be obtained in advance from the Honorary Ticket Secretary, Mr. J. L. Gedye, central offices, Euston station, and from Mr. F. Winsborrow, Broad Street station. The Cripplegate Institute Theatre is two minutes' walk from Aldersgate Street station.

Jubilee of the Arlberg Tunnel.—On September 20, 1884, the official train left Innsbruck to open the line through to Bludenz via the Arlberg tunnel, which forms part of one of the main lines of the Austrian Federal Railways. The first proposal to build an Arlberg line was made as long ago as 1847, but definite steps for its construction were not taken until 1875, when an economic crisis caused the project to be shelved. Work was begun in May, 1880, with Julius Lott as engineer. The tunnel, which is the seventh longest in the world, and is 6 m. 648 yd. in length, was completed on November 19, 1883. A maximum of 2,800 men were engaged on the work.

New Rolling Stock for Czechoslovakia.—Following successful experience with over 250 railcars, the Czechoslovak State Railways Administration has just ordered 40 railcars of up-to-date design, principally for branch lines. Orders have also been placed for 90 wagons. The contractors are all Czechoslovak companies.

Buenos Aires Central Railway.—Earnings during the past three years have decreased to such an extent as to make it necessary to apply for a further moratorium in respect of the second debentures and secured notes up to May 10, 1936, this interest to be repayable only if and when the debentures and the notes become redeemable or repayable. A representative committee of the second debenture holders and note holders, which is represented on the directorate in Buenos Aires, agrees that the further concessions now asked for by the company are necessary for the protection of the debenture holders' and note holders' interests and to enable the company to continue its existence in the expectation of eventual recovery.

New Great Western Railway Jigsaws.—Four additions to the popular range of Great Western Railway jig-saw puzzles are on sale to-day. The new subjects are, "The Streamline Way," "The Model Railway," "The Fishguard Army, 1797," and "London Highways." Scenes of railway interest appear in the two first named, "The Streamline Way" showing a new G.W.R. railcar, and "The Model Railway" being a scene of two children playing trains and watching through the window a Great Western express passing along the Devon coast near Dawlish. "The Fishguard Army" is based on the famous episode when the red cloaks of the Welsh women drawn up on the Pembrokeshire coast are said to have caused a French invading force to retreat under the impression that a strong military force awaited them. Old London Bridge figures in the remaining puzzle.

Free L.N.E.R. Lantern Slides.—Some 250 sets of lantern slides with an average of 80 slides in each set, depicting territory served by the L.N.E.R. are available for lecturers and may be borrowed free of charge on application to the Advertising Manager, L.N.E.R., at King's Cross station, York, or Edinburgh (Waverley). A printed lecture is sent with each set. In addition to the following 19 sets, a new set has been prepared this year illustrating Tynedale and the Roman Wall:—The East Coast route; Edinburgh and the Lowlands; Edinburgh to Aberdeen and the coast of Fife; Dee, Don, and Spey; Western Highlands; East Anglia; Norfolk holiday resorts; Lincolnshire; North

East coast; Yorkshire coast; Yorkshire moors and dales; cathedrals, abbeys, and historic places; London; centenary of railways; the railway museum, York; a visit to Holland; a visit to Belgium; a visit to Northern Italy; and a journey to Switzerland.

Sleeping Accommodation on Union Pacific High Speed Trains.—The illustrations on page 386 of our issue of September 7 were of the sleeping accommodation to be provided on the new Union Pacific high speed trains, and not, as inadvertently stated, on the original Union Pacific train of this type, which, as a matter of fact, is for day service only and has no sleeping accommodation.

Travel on German Railways.—The Reichsbank announced on September 19 that fares for travel on German Railways may no longer be paid for in registered marks if the tickets are bought abroad. Registered marks may still be used if the tickets are bought in Germany. The reason given for this new restriction is "the specially acute foreign currency situation." A Reuters message of September 9 had announced that the Central European Travel Bureau (Mittel-Europäische Reiseburo had ceased as from that date to issue through tickets from Germany to places abroad except Switzerland, owing to the difficulty of obtaining from the Reichsbank the necessary foreign currencies for settling accounts with corresponding foreign bureaux.

New Swedish Railways—New railway work in Sweden during the past few years has been concerned principally with the electrification of existing lines, states Reuters Trade Service from Stockholm. The most important new line at present under construction is the so-called Inland Railway, which will link Kristinehamn on Lake Vaener in central Sweden with Gaellivare in Lapland and form a parallel line in the interior of the country to the main line between Stockholm and Haparanda, which runs via Aange, Braecke, Laangsele, Jaern, and Boden. A small railway is also being built between Joenkoeping and Ulricehamn in central Sweden; this work is being organised for the relief of unemployment. A third line, between Malung and Vansbro in the province of Dalecarlia, a distance of 45 km., has just been begun. In his inauguration speech the Minister of Communications emphasised the fact that the Government had no intention of putting any obstacles in the way of development of commercial motor traffic on Swedish roads, which is seriously competing with the railways.

Railway Services Dislocated by Storm.—A severe thunderstorm which broke over London in the afternoon of September 15 caused considerable interference with main line, suburban, and Underground services. St. Pancras, L.M.S.R., and King's Cross, L.N.E.R., stations were the most severely affected. The bursting of a sewer in a tunnel near Kentish Town flooded the line and brought all traffic to a standstill between West Hampstead and St. Pancras. The hold-up lasted for over two hours, the first train to resume running being the Heysham boat express, which left to schedule at 5.0 p.m. Outgoing traffic was restored practically to normal by 7.30 p.m. King's Cross suffered from the flooding for half an hour of the central tunnel, necessitating the diversion of suburban trains to other tracks and the running of a skeleton service. Main-line trains were delayed a few minutes. The sub-station at Baker Street (Metropolitan Line) was flooded and brought trains to a standstill between Aldgate and South Kensington and between Finsbury Park and Moorgate. Uxbridge and Aylesbury line services were severely affected. L.M.S. electric trains to and from Euston were also delayed.

The Week's Road Accidents.—The Secretary to the Ministry of Transport has issued the following return for the week ended September 8 of persons killed or injured in road accidents:—

	Killed in accidents reported during the week	Reported during the week as having died as the result of accidents occurring in previous weeks	Injured in accidents reported during the week
	No.	No.	No.
England ...	101	31	4,706
Wales ...	7	2	211
Scotland ...	18	1	451
	126	34	5,368

The total fatalities of the week, as the result of road accidents, were, therefore, 160, as compared with 142 for the previous week.

A German Expert's Views on A.T.C. for High-Speed Lines

The following conditions to be met by up-to-date automatic train control apparatus on high speed lines have been drawn up by Dr. Bäseler, of the German State Railway, and published recently in the Journal of the Central European Railway Association. They indicate the trend of thought adopted by several Continental engineers in this matter, especially in connection with apparatus of the intermittent action type. Dr. Bäseler, it will be remembered, is the inventor of the optical train control system, with which further trials are to be made shortly.

(1) Whenever a stop signal is over-run, a full emergency brake application should immediately commence.

(2) When a distant signal is passed at "caution," a similar action should take place if the speed is not reduced to a figure consonant with the class of train concerned.

(3) In order to avoid having too many points of transmission between track and train, the checking of the speed can be made dependent on the effect transmitted at the distant signal, but this action should be suitably governed so as to avoid unnecessary speed reduction. At places where fast trains are liable to encounter distant signals against them, the apparatus must allow of the installation of intermediate controlling points, so that when the signal ahead goes to "proceed," all restrictive action is at once cancelled.

(4) A compulsory speed reduction must be of such value as to ensure that, should the following stop signal be over-run, the train will be brought to a stand with certainty within the overlap beyond it. Pending the general introduction of automatic train control, this requirement can be waived at places where the likelihood of an obstruction being met with beyond the signal is remote.

(5) When a heavy speed reduction is compulsorily brought about, as in paragraph 3 above, sufficient cancelling points must be provided to avoid unnecessary loss of time to trains. Independent speed limiting controls can be substituted for these cancelling points.

(6) When a signal indicates for a diverging route, the speed must be compulsorily limited to a figure suitable for that route.

(7) The use of a vigilance handle to test the attentiveness of the driver is permissible, but the apparatus should be so constructed that the before mentioned conditions will still be met in the event of the handle being subsequently dispensed with.

(8) In addition to its application to signalling, the speed control action must be suitable for use at all other points along the line where the safety of high speed traffic demands it, or makes it desirable, as at permanent way slacks, points, curves, gradients and swing bridges. The speed must be reduced as near as possible to the figure permissible at the place concerned. If a vigilance handle is used, it should only be necessary to operate it at distant signals or permanent way slacks where work is in hand, and not where a speed limit always obtains, to prevent confusing and overburdening the driver.

(9) Track apparatus for use where permanent way work is in hand must be easily transportable.

It is desirable that an automatic train control system should also meet the following conditions:—

(10) The track and train appliances must be tested as often as possible, and preferably in the ordinary course of working, so that a constant check is kept on their readiness to function.

(11) As a road vehicle stalled on a level crossing constitutes an increasingly great danger as high speed traffic develops, an approaching train should receive a warning, quite distinct from any other used in ordinary running, whenever such a condition obtains.

(12) Where the response of a train is governed by the combination of two control effects, the failure of one of them must act on the side of safety.

(13) The same principle must apply when two succeeding control effects produce the same response, as where a portion of line to be traversed at slow speed on account of permanent way work intervenes between distant and stop signals.

British and Irish Traffic Returns

GREAT BRITAIN	Totals for 37th Week			Totals to Date		
	1934	1933	Inc. or Dec.	1934	1933	Inc. or Dec.
	£	£	£	£	£	£
L.M.S.R. (6,940¾ mls.)						
Passenger-train traffic...	523,000	507,000	+ 16,000	18,120,000	17,840,000	+ 280,000
Merchandise, &c. ...	456,000	442,000	+ 14,000	16,269,000	15,042,000	+1,227,000
Coal and coke ...	211,000	195,000	+ 16,000	8,248,000	7,866,000	+ 382,000
Goods-train traffic ...	667,000	637,000	+ 30,000	24,517,000	22,908,000	+1,609,000
Total receipts	1,190,000	1,144,000	+ 46,000	42,637,000	40,748,000	+1,889,000
L.N.E.R. (6,339 mls.)						
Passenger-train traffic...	355,000	339,000	+ 16,000	11,691,000	11,499,000	+ 192,000
Merchandise, &c. ...	315,000	313,000	+ 2,000	11,268,000	10,392,000	+ 876,000
Coal and coke ...	221,000	207,000	+ 14,000	8,281,000	7,562,000	+ 719,000
Goods-train traffic ...	536,000	520,000	+ 16,000	19,549,000	17,954,000	+1,595,000
Total receipts	891,000	859,000	+ 32,000	31,240,000	29,453,000	+1,787,000
G.W.R. (3,750 mls.)						
Passenger train traffic...	232,000	228,000	+ 4,000	7,680,000	7,701,000	– 21,000
Merchandise, &c. ...	185,000	183,000	+ 2,000	6,558,000	6,100,000	+ 458,000
Coal and coke ...	107,000	95,000	+ 12,000	3,631,000	3,561,000	+ 70,000
Goods-train traffic ...	292,000	278,000	+ 14,000	10,189,000	9,661,000	+ 528,000
Total receipts	524,000	506,000	+ 18,000	17,869,000	17,362,000	+ 507,000
S.R. (2,176 mls.)						
Passenger-train traffic...	330,000	322,000	+ 8,000	11,111,000	10,957,000	+ 154,000
Merchandise, &c. ...	66,500	64,000	+ 2,500	2,328,000	2,223,500	+ 104,500
Coal and coke ...	30,500	26,000	+ 4,500	1,136,000	1,071,500	+ 64,500
Goods-train traffic ...	97,000	90,000	+ 7,000	3,464,000	3,295,000	+ 169,000
Total receipts	427,000	412,000	+ 15,000	14,575,000	14,252,000	+ 323,000
Liverpool Overhead ... (6¼ mls.)	1,116	1,143	– 27	42,746	42,280	+ 466
Mersey (4¼ mls.) ...	3,843	4,009	– 166	150,259	146,488	+ 3,771
*London Passenger Transport Board ...	531,500	528,900	+ 2,600	5,775,300	5,719,500	+ 55,800
IRELAND						
Belfast & C.D. pass. (80 mls.)	2,998	3,146	– 148	98,097	99,992	– 1,895
" " goods	461	408	+ 53	18,805	19,029	– 224
" " total	3,459	3,554	– 95	116,902	119,021	– 2,119
Great Northern pass. (562 mls.)	11,600	10,850	+ 750	377,500	283,950	+ 93,550
" " goods	9,600	9,150	+ 450	305,000	231,350	+ 73,650
" " total	21,200	20,000	+ 1,200	682,500	515,300	+ 167,200
Great Southern pass. (2,158 mls.)	25,831	28,291	– 2,460	912,222	901,722	+ 10,500
" " goods	32,090	31,766	+ 324	1,175,324	1,100,184	+ 75,140
" " total	57,921	60,057	– 2,136	2,087,546	2,001,906	+ 85,640

* 11th week, the receipts for which include those undertakings not absorbed by the L.P.T.B. in the corresponding period last year; last year's figures are, however, adjusted for comparative purposes

Exports of Railway Material from the U.K. in August

	Aug., 1934	Aug., 1933	Eight Months Ending Aug., 1934	Eight Months Ending Aug., 1933
	£	£	£	£
Locomotives, rail	24,590	130,949	194,619	691,934
Carriages and wagons	52,517	40,144	483,994	327,525
Rails, steel	189,404	42,988	706,401	371,757
Wheels, sleepers, fishplates and miscellaneous materials	111,144	59,312	713,831	501,469

Locomotive and rail exports included the following :—

	Locomotives		Rails	
	Aug., 1934	Aug., 1933	Aug., 1934	Aug., 1933
	£	£	£	£
Argentina	—	2,805	2,414	5,912
Union of South Africa	—	1,200	30,652	4,401
British India	3,228	10,146	35 429	16,751

Forthcoming Events

Sept. 27 (*Thurs.*) Institution of Locomotive Engineers in the hall of the Institution of Mechanical Engineers, Storey's Gate, S.W.1, at 6 p.m. Opening general meeting and presidential address by Mr. H. N. Gresley, C.B.E., Chief Mechanical Engineer, L.N.E.R.

Oct. 8 & 9 (*Mon. and Tues.*)—L.M.S.R. (London Amateur Dramatic Society, at the Cripplegate Institute Theatre, Golden Lane, E.C. at 8 p.m. "The Farmer's Wife," by Eden Phillpotts.

Oct. 10 (*Wed.*).—Institution of Railway Signal Engineers, at Inst. of Electrical Engineers, Savoy Place, London, W.C.2, 6 p.m. "The Distant Signal Problem," by Mr. T. S. Lascelles.

Oct. 12 (*Fri.*)—Railway Club, 57, Fetter Lane, London, E.C.4. "Punch's Railway (The West London Railway)," by D. V. Levien.

British and Irish Railways Stocks and Shares

Stocks	Highest 1933	Lowest 1933	Prices Sept. 19, 1934	Prices Rise/Fall
G.W.R.				
Cons. Ord. ...	55½	31	49½	–1
5% Con. Prefce. ...	109¾	69½	112½	—
5% Red.Pref.(1950)	109¼	87½	108½	—
4% Deb.	108 15/16	99¼	109½	—
4½% Deb.... ...	108	100¾	111½	—
4½% Deb.... ...	116	106	119½	—
5% Deb.	128	117¼	130	—
2½% Deb.... ...	65	60	70½	—
5% Rt. Charge ...	124	111½	128½	—
5% Cons. Guar. ...	122	103	126	–½
L.M.S.R.				
Ord.	29⅞	12⅛	21½	–½
4% Prefce. (1923)	51	17	48½	–½
4% Prefce. ...	72	33¼	78½	+1
5% Red. Prf. (1955)	93	47¼	99½	—
4% Deb.	103¼	89½	104	–½
5% Red.Deb.(1952)	114	105	114½	—
4% Guar.	97¼	68⅝	100½	—
L.N.E.R.				
5% Pref. Ord. ...	22½	7¾	16¼	–¼
Def. Ord.	10¾	4⅛	8⅝	–⅛
4% First Prefce. ...	65½	19⅜	64	–½
4% Second Prefce.	40½	12¼	30½	–½
5% Red.Pref.(1955)	83¾	27	83	—
4% First Guar. ...	94¾	58¼	94½	—
4% Second Guar.	89¼	48	89	—
4% Deb.	77	60¼	77	—
4% Deb.	102¾	80	102½	—
5% Red.Deb.(1947)	112	102½	112½	—
4½% Sinking Fund Red. Deb.	107½	98¾	108½	—
SOUTHERN				
Pref. Ord.... ...	71	27¾	72	–1
Def. Ord.	24⅜	9⅜	22½	–1
5% Prefce. ...	107 11/16	74	112	–½
5% Red.Pref.(1964)	107¾	78⅞	111½	—
5% Guar. Prefce.	124¼	102¾	124½	—
5% Red.Guar.Pref. (1957)	115⅝	103½	115	—
4% Deb.	107½	96¾	109	—
5% Deb.	126½	114¼	129½	—
4% Red. Deb. 1962–67	107¼	100	109½	—
BELFAST & C.D.				
Ord.	6		5	—
FORTH BRIDGE				
4% Deb.	99½	95½	102½	—
4% Guar. ...	98½	94	102½	—
G. NORTHERN (IRELAND)				
Ord.	7½	3½	7	—
G. SOUTHERN (IRELAND)				
Ord.	28	16	14	—
Prefce.	24	12⅛	16½	—
Guar.	42	16¾	46	—
Deb.	60	30⅞	63	—
L.P.T.B.				
4½% "A" ...	117⅞	112	121½	—
5% "A"	127¼	119¼	131½	—
4½% "T.F.A." ...	111¼	106	110	—
5% "B"	122½	114	126	—
"C"	86¾	74½	81	—
MERSEY				
Ord.	16¼	5	12	—
4% Perp. Deb. ...	83	63⅞	86½	—
3% Perp. Deb. ...	62	51	64½	—
3% Perp. Prefce....	50⅝	27	48½	—

CONTRACTS AND TENDERS

W. & T. Avery Limited has received an order from the Indian Stores Department for two No. A650 5-tons capacity wheel weighers.

The Chloride Electrical Storage Co. Ltd. has received orders from the Indian Stores Department for components for Lux train-lighting cells.

The Royal Hungarian State Iron, Steel & Machine Works has received an order from the Great Indian Peninsula Railway for 33 HS type locomotive boilers to be supplied to the inspection of the consulting engineers, Messrs. Rendel, Palmer & Tritton.

Volkart Bros. has received orders from the Indian Stores Department for one B.T.-H. 750 kW. alternator at Rs. 22,350, one M.A.N. airless injection, four stroke diesel engine type G6 VU74, of 1,530 b.h.p. at 250 r.p.m. capacity at Rs. 109,450, one Brown Boveri voltage regulator, pyrometers and details.

J. Browett-Lindley (1931) Limited has received an order for a motor driven air compressor for the Parel works of the Bombay, Baroda & Central India Railway. This order follows several others recently received for similar plant. The compressor has an output of 51,000 cub. ft. of free air per hour at 110 lb. per sq. in., and will be supplied complete with intercooler and aftercooler, the latter being designed to reduce the moisture content to a minimum, owing to the humid atmospheric conditions on site.

Laurence Scott & Electromotors Limited is supplying the electrical equipment for the above plant. This embodies an electrical interlock and unloading valve so arranged that the main circuit-breaker cannot be closed unless the motor is in the correct position for starting. The whole of the plant is to the specification of Messrs. Rendel Palmer & Tritton, consulting engineers.

Alfred Dodman & Co. Ltd. has received an order for two vertical steam boilers for cranes for the Peruvian Corporation.

G. D. Peters & Co. Ltd. has received an order from the Peruvian Corporation for one Wilson Plastic-Arc portable motor generator welding plant.

Henry Pels & Co. Ltd. has received an order for one motor-driven combined plate splitting shears with punch, bar, angle and tee bevel cropper for the Peruvian Corporation.

The Churchill Machine Tool Co. Ltd. has received an order from the Buenos Ayres Western Railway for one double-ended axle journal re-turning and grinding machine.

H. J. Skelton & Co. Ltd. has received an order from the Egyptian State Railways Administration for mild steel plates at a total cost of £2,577.

The Perfecta Seamless Steel Tube & Conduit Co. Ltd. has received an order from the Egyptian State Railways Administration for carriage brake gear bushes at a total cost of £205 16s.

Breakdown Crane for Egypt

Ransomes & Rapier Limited has received an order from the Egyptian State Railways Administration for a 40-ton steam break-down crane and match truck. The crane is designed for lifting a 40-ton load at a maximum radius of 23 ft. It is mounted on five axles and is self propelling. It is the third crane of the same size ordered by the Egyptian State Railways from Ransomes & Rapier Limited.

The following orders, to the values stated, were placed in Great Britain by the Russian Soviet Government for the months of July and August :—

Machine tools: The Butler Machine Tool Co. Ltd., £27,500; Geo. Richards & Co. Ltd., £26,000; Drummond Bros. Ltd., £11,000; the Churchill Machine Tool Co. Ltd., £10,000; and John Lang & Sons Ltd., £16,500.
Steam breakdown crane: Cowans, Sheldon & Co. Ltd., £28,000.
Motor tractor tubes: Accles & Pollock Limited, £28,000.
Excavators: Ransomes & Rapier Limited, £15,000; and Ruston-Bucyrus Limited, £14,500.
Compressors: Broom & Wade Limited, £15,000.
Diesel engines: Ruston & Hornsby Limited, £16,000.
Boiler plates: Colvilles Limited, £8,250; and the Consett Iron Co. Ltd., £8,250.

Orders placed in July, 1934, totalled £860,132, as compared with a total of £378,625 for July, 1933. The corresponding figures, for August, 1934, and August, 1933, were respectively £812,034 and £553,288.

The French Minister of Colonies is calling for tenders to be submitted by November 15, for the supply of 7,200 reinforced concrete sleepers for use on the Tourane-Nhatrang section of the Indo-China Railways.

The Egyptian State Railways Administration invites tenders receivable at the General Management, Cairo, by November 20 for 150,000 metric tons of coal.

The Egyptian State Railways Administration invites tenders receivable at the office of the Superintendent of Stores, Saptieh, Cairo, by September 29 for three petrol-driven inspection railcars.

The Bengal-Nagpur Railway invites tenders, receivable at 132, Gresham House, Old Broad Street, London, E.C.2, by October 2, for 9,680 volute and spiral springs.

Tenders are invited, receivable by October 9, by the Agent, East Indian Railway, 105, Clive Street, Calcutta, for an electrically-driven multiple punching machine for tie bars and cotters.

Tenders are invited, receivable by November 19, by the Secretary, Stores Purchase Committee, Government of Mysore, Bangalore, for two portable power-driven welding machines required for the Mysore Railway Central work shops.

Tenders are invited, receivable by October 3, by the Agent, Eastern Bengal Railway, Calcutta, for one 80-in. single purpose, heavy duty wheel lathe suitable for broad gauge inside and outside motion wheels with motors and control gear complete; one motor driven axle journal grinding machine for inside and outside of locomotive and tender journals; and one grinding and buffing machine for engine motion details and side and coupling rods.

LEVEL CROSSING GATES AT HULL.—The L.N.E.R. will shortly be changing the method of operation of the level crossing gates at Walton Street, Springbank West, Hull. At the present time the opening and closing of the gates is performed by means of a manually-operated wheel. In future the gates will be opened by electric power controlled from the adjacent signal box and electric signs will be erected on the roadway on each side of the crossing to warn road traffic of the position of the gates. These signs will be similar to the road traffic signs now universally used. A green light will indicate that the gates are open for the passage of road traffic; an amber light that the gates are about to be closed and that road traffic should not proceed beyond the white safety line on the roadway; and a red light that road traffic should stop as the gates are either closed or being closed against road traffic. The combination of the amber and red lights will indicate that the gates are about to be opened for road traffic. The new system of operation will speed up the opening and closing of the gates and reduce the time during which the gates require to be closed against road traffic before the passage of a train.

GEORGE STEPHENSON—A paragraph published a few days ago in the "agony" columns of *The Times* invited any descendants or heirs of George Stephenson to communicate (through Box W. 32 of *The Times*) with another descendant.

REPEATED-STRESS TESTING MACHINES.—Circular No. 23, "Repeated-Stress (Fatigue) Testing Machines Used in the Material Testing Laboratory of the University of Illinois," by Herbert F. Moore and Glan N. Krouse, has been issued by the Engineering Experiment Station of the University of Illinois. For a limited time copies of Circular No. 23 may be obtained without charge by addressing the Engineering Experiment Station, Urbana, Illinois.

OFFICIAL NOTICES

Bengal-Nagpur Railway Company Limited

THE Directors are prepared to receive Tenders for:—

9,680 VOLUTE AND SPIRAL SPRINGS.

Specification and Form of Tender can be obtained at the Company's Offices, 132, Gresham House, Old Broad Street, London, E.C.2, on or after Tuesday, 18th September, 1934.

A fee of 10s. will be charged for each copy of the Specification, which is *NOT* returnable.

Tenders must be submitted not later than NOON on Tuesday, 2nd October, 1934.

The Directors do not bind themselves to accept the lowest or any Tender and reserve to themselves the right of reducing or dividing the order.

By Order of the Board,
R. GRANT.
Secretary.

PATENTS for Inventions, Trade Marks, Advice, Handbook, and consultations free. King's Patent Agency, Ltd. (B. T. King, C.I.M.E., Registered Patent Agent, G.B., U.S., and Canada), 146A, Queen Victoria Street, London, E.C.4. 49 years' references. 'Phone City 6161.

OFFICIAL ADVERTISEMENTS

OFFICIAL ADVERTISEMENTS intended for insertion on this page should be sent in as early in the week as possible. The latest time for receiving official advertisements for this page for the current week's issue is noon on Thursday. All advertisements should be addressed to:—*The Railway Gazette*, 33, Tothill Street, Westminster, London, S.W.1.

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Portable Foot-operated Brake Valve

The Nicot apparatus, designed to enable shunters to apply the brakes when riding on propelled vehicles

When vehicles are being propelled into sidings, platform lines or sheds the driver of the locomotive often finds it far from easy to control the movement with accuracy and certainty, due to the difficulty of seeing sufficiently far ahead, especially where curves have to be negotiated. In consequence, a shunter rides on the leading vehicle of the series and is responsible for giving signals to the driver, in accordance with the conditions obtaining. Unless he is in a van, however, he has no direct control himself over the brakes, and is powerless to avert an accident should the driver fail to see the signals made to him, or to keep a proper lookout. A van valve, moreover, is not adapted to regular use, and is normally somewhat rough in its action. On certain occasions, as when vehicles are being shunted to allow an important movement to take place and the operation requires to be effected as rapidly as possible, some efficient and reliable method of applying the brakes from the end of the propelled vehicles, or near it, is very desirable.

It is with the object of meeting this requirement that M. Marcel Nicot, Chief Draughtsman of the Chemins de fer de l'Est, has designed the foot-operated brake valve unit illustrated in the accompanying figures, which enables a shunter to keep the shunted vehicles under control from whatever position on the footboard gives him the best view ahead. The apparatus consists of a valve chamber containing two valves, *C* and *D*, mounted concentrically one above the other, the smaller of the two, *C*, being uppermost. The lower guide stem of this valve passes through the larger one, *D*, and is provided with longitudinal slots allowing free passage to the air as soon as the valve is lifted off its seat, which is, of course, actually the upper face of the lower valve. The lower valve rests on a fixed seat, and its stem is likewise provided with longitudinal air grooves. A foot-pedal, *B*, with a locking pawl *E* to hold it in its lowest position, is provided, and when partially depressed its tail raises the small valve *C*, creating a train pipe exhaust of 100 sq. mm. and setting up a service brake application. When fully depressed, in case of emergency, it lifts both valves off their seats and increases the vacuum to 315 sq. mm., or about 0·64 of the train pipe area. As the pedal remains locked in the emergency position, the shunter is then free, if necessary, to jump down on the track. The pawl can be released by pressing its tail with the foot, when the pedal and the valves will return to their normal positions. To allow of this device being used on any vehicle at will, it is provided with a clamp fixing for securing it rapidly and firmly in place, and a length of brake hose with a coupling head, enabling it to be connected to one of the usual hoses at the ends of a vehicle.

The Chemins de fer de l'Est have a number of these Nicot foot-operated brake valves in service, notably at Paris-Est, and have found that a marked diminution in the damage received by vehicles during shunting has resulted from their use. The other French railways are also either making trials with the Nicot valve or intend shortly to do so.

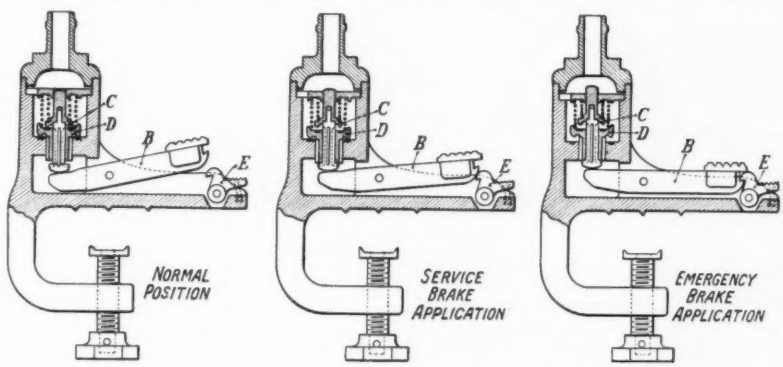

Diagram showing normal position and two degrees of application of the Nicot valve

RAILWAY SHOPMEN'S WAGES.—A meeting has been arranged for September 28 between representatives of the Railway Shopmen's Council and the Railway Staffs Conference to consider the application of the shopmen for a return of the deductions made from their wages during the period of the railway depression. The companies have already made a compromise offer, to be carried out in two stages, but the shopmen's council intends to press for the complete restoration of the deductions, on the ground that the shopmen were more hardly hit than any other section of railway workers.

Railway Share Market

Stock and share markets have been steady, with a hardening tendency in fixed interest-bearing stocks. This tendency is not so pronounced in the debenture stocks of the home railways as might have been expected from the upward movement in British Government stocks. If gilt-edged securities are, as is probable, to be valued generally on the basis of quotations for British Government stocks, a revision upward in such stocks as Great Western 4 per cent. debentures, L.M.S. 4 per cent. debentures and Southern 4 per cent. debentures may be anticipated.

A line of each of these stocks is available on the market just now at 109¾, 104¾ and 109¼ respectively to give yields of from 3⅝ to 3⅞ per cent., which is 5s. to 10s. per cent. more than is obtainable on British Government stock of long-dated maturity. Home railway prior charge stocks offer at the present time higher yields than are to be obtained by investors from investments offering equivalent security. This position will not continue if British Government loans are put on a lower yield basis than 3 per cent. Already 2½ per cent. consols, the only stock comparable with perpetual home railway debenture stocks, is being purchased on the basis of £3 1s. per cent. The preferential class of railway stock depending on net revenue for dividend, is expected to fluctuate irrespective of money rates. L.M.S. 4 per cent. 1923 preference stock, which rose last week to 49 following Sir Josiah Stamp's reference to the outlook, gave way slightly this week on profit-taking sales.

In the foreign railway market, Argentine railway preference stocks, notably B.A. Great Southern first preference and B.A. Western first preference, were in some demand on estimates that the dividends have been earned and will be paid in full. Central Argentine 5 per cent. debenture stock, of which a block of £100,000 was placed privately with a London syndicate last week, has been dealt in at around 81. B. A. Central first mortgage debenture stock changed hands at 21 and 23, notwithstanding the proposed extension of the moratorium which is rendered necessary by the exchange situation. Central Uruguay 5 per cent. Extension debenture stock was raised three points in the List to 44-47, and dealings were recorded at a higher level. Business was active in Manila issues, the 5 per cent. preference being done around 3s. 6d. and the 4 per cent. "A" debenture changed hands down to 51. San Paulo ordinary weakened on disappointment with the passing of the interim dividend, the directors having decided to await completion of the full year before making any decision as to dividend.

Traffic Table of Overseas and Foreign Railways Publishing Weekly Returns

	Railways	Miles open 1933–34	Week Ending	Traffics for Week: Total this year	Traffics for Week: Inc. or Dec. compared with 1933	No. of Week	Aggregate Traffics to Date: Totals: This Year	Aggregate Traffics to Date: Totals: Last Year	Aggregate Traffics to Date: Increase or Decrease	Shares or Stock	Prices: Highest 1933	Prices: Lowest 1933	Prices: Sept. 19, 1934	Prices: Yield % Note)
				£	£		£	£	£					
South & Central America.	Antofagasta (Chili) & Bolivia	830	16.9.34	16,670	+ 2,000	37	523,500	388,930	+ 134,570	Ord. Stk.	26	11¾	25	Nil
	Argentine North Eastern..	753	15.9.34	7,879	– 2,727	11	87,190	118,027	– 30,837	,,	14½	5	9½	N il
	Argentine Transandine ..	111	—	—	—	—	—	—	—	A. Deb.	55	40	50	8
	Bolivar	170	Aug., 1934	5,300	+ 900	34	49,150	51,650	– 2,500	6 p.c. Db.	10	5	10	Nil
	Brazil	—	—	—	—	—	—	—	—	Bonds.	15	11	12½	4
	Buenos Ayres & Pacific ..	2,806	15.9.34	69,406	– 13,754	11	771,701	903,923	– 132,222	Ord. Stk.	26	9716	13	Nil
	Buenos Ayres Central ..	190	26.8.34	$140,900	+ $3,300	8	$1,057,600	$1,045,600	+ $12,000	Mt. Db.	30	10	23	Nil
	Buenos Ayres Gt. Southern	5,085	15.9.34	123,834	– 22,445	11	1,355,380	1,704,148	– 349,068	Ord. Stk.	44½	21½	29½	Nil
	Buenos Ayres Western ..	1,926	15.9.34	33,217	– 12,513	11	463,537	567,953	– 104,416	,,	34½	15¾	24	Nil
	Central Argentine ..	3,700	15.9.34	120,772	– 764	11	1,413,959	1,519,894	– 105,935	,,	28½	15	19	Nil
	Do.	—	—	—	—	—	—	—	—	Dfd.	18	10	10	Nil
	Cent. Uruguay of M. Video	273	15.9.34	13,425	+ 233	11	152,068	153,810	– 1,742	Ord. Stk.	20	8	17½	Nil
	Do. Eastern Extn.	311	15.9.34	2,889	+ 465	11	31,007	27,239	+ 3,768	—	—	—	—	—
	Do. Northern Extn.	185	15.9.34	1,578	+ 275	11	17,607	17,291	+ 316	—	—	—	—	—
	Do. Western Extn.	211	15.9.34	1,647	+ 85	11	13,383	14,073	– 690	—	—	—	—	—
	Cordoba Central	1,218	15.9.34	28,030	– 11,320	11	368,960	471,930	– 102,970	Ord. Inc.	9¼	2½	5	Nil
	Costa Rica	188	July, 1934	18,181	– 2,523	4	18,181	20,704	– 2,523	Stk.	29	20	27½	7¼
	Dorada	70	Aug., 1934	11,300	+ 2,800	34	80,500	61,600	+ 18,900	1 Mt. Db.	76½	68¾	105	5 11/16
	Entre Rios	810	15.9.34	11,550	– 1,706	11	120,215	154,419	– 34,204	Ord. Stk.	26½	9	16	Nil
	Great Western of Brazil ..	1,082	15.9.34	8,100	+ 600	37	277,600	350,600	– 73,000	Ord. Sh.	23/6	1/2	7/8	Nil
	International of Cl. Amer.	794	July, 1934	$302,803	– $28,462	30	$3,022,796	$2,990,146	+ $32,650	—	—	—	—	—
	Interoceanic of Mexico ..	—	—	—	—	—	—	—	—	1st Pref.	1/2	1/16	1/8	Nil
	La Guaira & Caracas ..	225/4	Aug., 1934	3,930	+ 430	34	29,820	42,770	– 12,950	Stk.	16	10	8½	Nil
	Leopoldina	1,918	15.9.34	33,664	– 564	37	927,777	909,111	+ 18,666	Ord. Stk.	20¼	10	10½	Nil
	Mexican	483	14.9.34	$246,900	+ $33,500	10	$2,424,000	$1,987,200	+ $437,000	,,	3	1/2	3	Nil
	Midland of Uruguay ..	319	Aug., 1934	8,088	– 697	9	17,549	17,530	+ 19	Ord. Stk.	2	1	1/2	Nil
	Nitrate	401	15.9.34	7,727	– 1,490	37	182,510	88,840	+ 93,670	Ord. Sh.	78/6	11/16	2/8	Nil
	Paraguay Central	274	15.9.34	4,470	+ 1,470	11	50,320	42,260	+ 8,060	Pr. Li. Stk.	72	49½	70	8½
	Peruvian Corporation ..	1,059	Aug., 1934	70,048	+ 14,087	8	122,665	107,206	+ 15,459	Pref.	15¼	5	11½	Nil
	Salvador	100	8.9.34	¢8,300	– ¢8,150	10	¢99,571	¢143,828	– ¢44,257	Pr. Li. Db.	70	66½	70	7¼
	San Paulo	1531/2	9.9.34	25,125	– 8,351	36	1,087,666	1,082,022	+ 5,644	Ord. Stk.	102	68	81	4 15/16
	Taltal	164	Aug., 1934	6,435	+ 2,720	8	13,475	7,035	+ 6,440	Ord. Sh.	1¾	3/4	1¾	5 11/16
	United of Havana.. ..	1,365	15.9.34	15,635	+ 1,511	11	191,369	141,448	+ 49,921	Ord. Stk.	8	2	4½	Nil
	Uruguay Northern ..	73	Aug., 1934	1,015	– 65	9	2,071	2,146	– 75	Deb. Stk.	6	3½	4½	Nil
Canada.	Canadian National ..	23,748	14.9.34	717,598	+ 26,530	36	22,760,980	20,107,781	+2,653,199	—	—	—	—	—
	Canadian Northern ..	—	—	—	—	—	—	—	—4p.c.	Perp. Dbs.	60½	38	74½	5 7/16
	Grand Trunk	—	—	—	—	—	—	—	—	4 p.c. Gar.	99¾	85	101	3 15/16
	Canadian Pacific	17,018	14.9.34	588,400	+ 97,600	36	16,910,200	15,128,000	+1,782,200	Ord. Stk.	22⅛	11	14	Nil
India.†	Assam Bengal	1,311	18.8.34	24,495	+ 3,565	20	535,734	435,434	+ 100,300	Ord. Stk.	79	70	81	3 11/16
	Barsi Light..	202	25.8.34	2,077	+ 555	21	64,987	64,327	+ 660	Ord. Sh.	101¾	70	100½	6
	Bengal & North Western..	2,112	25.8.34	35,233	– 8,109	21	1,058,095	1,035,617	+ 22,478	Ord. Stk.	292	240	282½	5 11/16
	Bengal Dooars & Extension	161	25.8.34	3,374	– 17	21	56,853	57,091	– 238	,,	127	119	126	5 9/16
	Bengal-Nagpur	3,269	18.8.34	93,000	+ 2,399	20	2,256,225	2,043,437	+ 212,788	,,	97¼	83½	103½	3 7/8
	Bombay, Baroda & Cl. India	3,072	8.9.34	122,850	– 3,375	23	3,432,000	3,291,000	+ 141,000	,,	112	107	110½	5 7/16
	Madras & South'n Mahratta	3,230	18.8.34	102,600	– 746	20	2,309,416	2,318,018	– 8,602	,,	127	114¼	127½	7 1/16
	Rohilkund & Kumaon ..	546	25.8.34	6,320	– 1,555	21	201,519	197,607	+ 3,912	,,	260	225	251½	5 15/16
	South India	2,526	18.8.34	77,767	+ 4,858	20	1,642,150	1,572,828	+ 69,322	,,	119½	112	116½	6 7/8
Various.	Beira-Umtali	204	July, 1934	62,234	+ 17,455	43	519,179	411,279	+ 107,900	—	—	—	—	—
	Bilbao River & Cantabrian	15	Aug., 1934	1,358	– 426	34	14,340	12,190	+ 2,150	—	—	—	—	—
	Egyptian Delta	621	31.8.34	6,485	+ 607	22	83,910	78,164	+ 5,746	Prf. Sh.	1 31/32	1¾	2⅝	4¼
	Great Southern of Spain ..	104	8.9.34	2,114	– 516	36	75,372	76,410	– 1,038	Inc. Deb.	4	3	3½	Nil
	Kenya & Uganda	1,625	Mar., 1934	240,520	+ 21,064	12	638,137	606,192	+ 31,945	—	—	—	—	—
	Manila	—	—	—	—	—	—	—	—	B. Deb.	53	33½	43½	8 1/16
	Mashonaland	913	July, 1934	116,483	+ 42,625	43	956,615	650,063	+ 306,552	1 Mg. Db.	91¼	42	94	8 5/16
	Midland of W. Australia ..	277	July, 1934	11,897	– 42	4	11,897	11,939	– 42	Inc. Deb.	89	70	97½	4¼
	Nigerian	1,905	4.8.34	29,137	+ 12,877	18	458,506	398,973	+ 59,533	—	—	—	—	—
	Rhodesia	1,538	July, 1934	192,507	+ 58,885	43	1,612,748	1,187,812	+ 424,936	4 p.c. Db.	98½	80¾	102	3 15/16
	South African	13,182	25.8.34	530,874	+ 82,996	21	10,290,693	9,176,728	+1,113,965	—	—	—	—	—
	Victorian	6,172	May, 1934	755,392	+ 15,381	48	8,479,194	8,811,604	– 332,410	—	—	—	—	—
	Zafra & Huelva	112	July, 1934	11,060	+ 55	30	76,861	73,331	+ 3,530	—	—	—	—	—

Norz.—Yields are based on the approximate current prices and are within a fraction of 1/16.
† Receipts are calculated @ 1s. 6d. to the rupee. § ex dividend. Salvador receipts are in currency.
The variation in Sterling value of the Argentine paper peso has lately been so great that the method of converting the sterling weekly receipts at the par rate of exchange as proved misleading, the amount being overestimated. The statements from July 1 onwards are based on the current rate of exchange and not on the par value

(See Note)
Nil
Nil
3
Nil
4
Nil
Nil
Nil
Nil
Nil
Nil
Nil
Nil
Nil
7¼
5 13/16
Nil
Nil
Nil
Nil
Nil
Nil
Nil
8½
Nil
7¼
4 15/16
5 13/16
Nil
Nil
5 7/16
3 15/16
Nil
3 11/16
3
5 13/16
5 9/16
3½
5 7/16
7 7/16
5 15/16
3½
4¼
Nil
3 11/16
5 5/16
4½
3 15/16